

TUBING/CASING ANNULUS REQUIREMENTS

The UIC permit requires that PG&E maintain an approximate pressure of one hundred (100) psi at shut-in conditions on the tubing/casing annulus (annulus) of the I/W well by injecting a nitrogen blanket in the uppermost portion of the annulus. The subsequent annulus pressure-temperature changes are to be evaluated to verify whether they are due to thermal effects or represent well integrity failures. The expected magnitude of potential pressure changes due to thermal effects will be calculated and evaluated early during the injection process. This pressure range will serve as the expected range of annular pressure and any annular pressure measured outside of this established normal pressure range may indicate a potential loss of mechanical integrity. The results of this evaluation are being submitted to EPA within thirty (30) days of completing the analysis.

CALCULATION OF EXPECTED ANNULUS PRESSURE CHANGES

Calculations were made to determine the expected annular pressure changes due to thermal effects. The primary factor affecting the annulus pressure is the thermal expansion, or contraction, of the confined annular fluids. This means that the expected pressure changes will be due to the water volume in the annulus acting like a piston on the nitrogen blanket. The change in water density as a function of water temperature causes a change in the water volume in the annulus increasing or decreasing the volume of the nitrogen cap. The resulting nitrogen pressure can be calculated using the ideal gas law with the new nitrogen volume being adjusted for the change in water volume. The methodology and calculation equations are presented in **EXHIBIT 1**.

The calculations of the change in annular pressure for a given change in the average temperature of the water in the annulus are presented by **EXHIBIT 2**. During the oxygen-depleted air injection, the average wellbore temperature is, in general, expected to decrease due to the cooling effect of injection (60-90 degrees F. manifold temperature versus 128 deg. F. bottomhole temperature). As a result, the nitrogen pressure should also decrease during the injection period. The range of annulus pressures anticipated due to thermal effects, for an initial nitrogen blanket of 0.6 cubic feet at 100 psi is shown graphically by **EXHIBIT 3**. The range in annular pressure due to thermal effects is predicted to be 30 – 140 psia.

THEORETICAL VS ACTUAL ANNULAR PRESSURE CHANGES

A nitrogen blanket was placed on the annulus on February 10, 2015. Several gallons of water were drained from the wellhead annulus prior to injecting the nitrogen to minimize the void space. The annulus was pressured to 99 psia with a volume of nitrogen from a bank of 3,000 psi cylinders. The space occupied by the nitrogen was assumed to be approximately 0.60 cubic feet.

During the first month of normal injection operations, the annular pressure fluctuations were monitored to determine the cyclic range of annular pressure fluctuations for the I/W well. These fluctuations were compared to the theoretical calculated change in annular pressure due to thermal effects based on the delta change in the average wellbore temperature (using **EXHIBIT 3**).

The average wellbore temperature (T_f) was calculated as a simple arithmetic average of the surface wellbore temperature and the bottomhole wellbore temperature. The bottomhole temperature is measured continuously by a surface readout gauge. The surface wellbore temperature, which is not being measured directly, was determined from the variation in the measured annulus temperatures. The initial average wellbore temperature (T_i) prior to injection was calculated to be 94.0 deg. F. (average of 60.0 deg. F. surface and 128.0 deg. F. bottomhole).

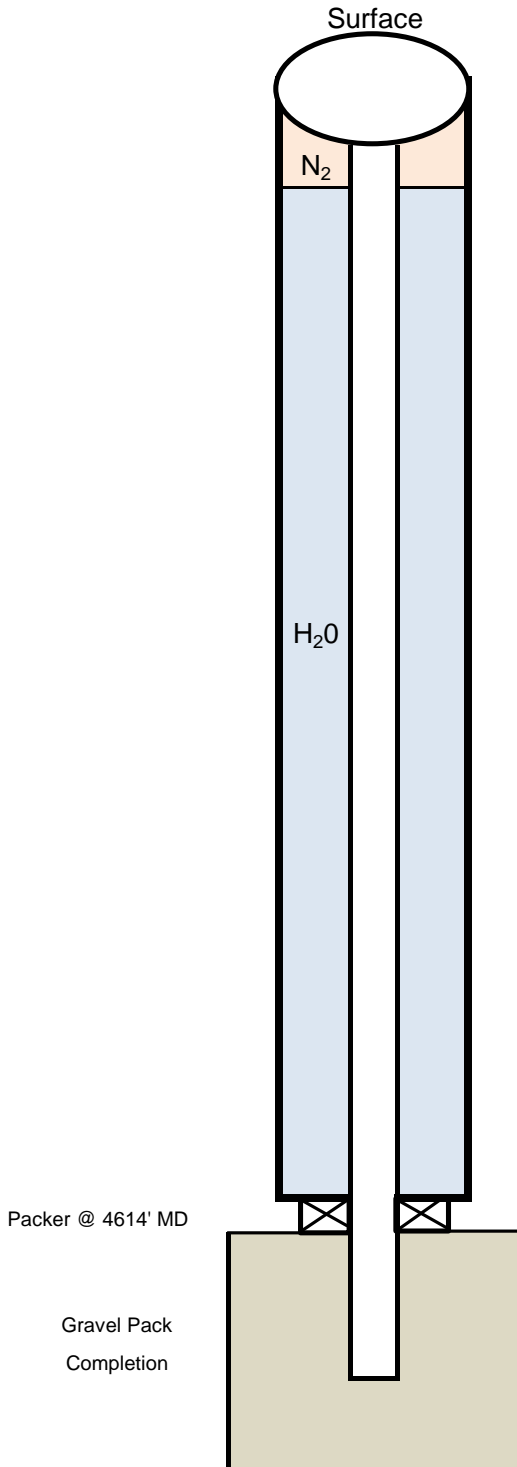
The observed variation in annulus pressure during the first 30 days of injection operations is presented by **EXHIBIT 4**. The observed variation in annulus temperature, bottomhole temperature, and injection rate during the same period is shown by **EXHIBITS 5** and **6**. The bottomhole temperature is a strong function of the injection rate. As expected, once injection starts, the average wellbore temperature decreases, causing a decrease in the volume occupied by the water in the annulus. The space occupied by the nitrogen cap necessarily increases resulting in a decrease in the annulus pressure. The annulus pressure fluctuates with the changing annulus water density and temperature.

The calculated versus observed annulus pressures during the first 30 days of injection operations is shown by **EXHIBIT 7**. There is a good comparison between the calculated and observed pressures for this period. The conclusion is that the changing annulus pressures for the I/W well in the first 30 days can be attributed to thermal effects and not to any wellbore integrity issues. The calculated annulus pressures are very sensitive to small changes in the average wellbore temperature; therefore, a better match of the observed annulus pressure changes requires a measured temperature profile in the wellbore during injection. Since this is not practical, the proposed methodology is sufficient to determine the expected range of annular pressure due to thermal effects.

EXPECTED RANGE OF ANNULAR PRESSURES

The expected cyclic range of I/W well annulus pressure fluctuations during injection operations is 30 – 140 psia. This range is demonstrated above to be consistent with thermal effects. An annulus pressure measured outside of this normal pressure range may indicate a potential loss of mechanical integrity and will be reported to the EPA and reviewed by PG&E.

PG&E Test I/W Well 1 Annulus Pressure Calculations



Assume that the water in the annulus acts like a piston on the N₂ cap.

The change in water density (ρ) as a function of temperature is:

$$\rho_{wf} = \rho_{wi} / [1 + \beta (T_f - T_i)]$$

but, ρ = mass/vol and mass is constant; therefore:

$$\frac{1}{V_{wf}} = \frac{1}{V_{wi}} / [1 + \beta (T_f - T_i)]$$

$$V_{wf} = V_{wi} \times [1 + \beta (T_f - T_i)]$$

$$\Delta V_w = V_{wf} - V_{wi}$$

Where:

V_{wi} = Initial water volume, m³

V_{wf} = Final water volume, m³

T_i = Initial water temperature, °C

T_f = Final water temperature, °C

β = Volumetric temperature co-efficient of water, m³/m³ °C
(www.engineeringtoolbox.com)

For N₂ cushion:

$$PV = z n R T$$

$$P_1 = 100 \text{ psi}$$

$$P_2 = \frac{z n R T_2}{V_2} \longrightarrow \text{N}_2 \text{ volume adjusted for } \Delta V_w$$

I/W Test Well Annulus Pressure Calculations based on the change in Water Density as a Function of Temperature

ASSUMPTIONS & INPUT PARAMETERS

Annular space between 9-5/8" 40# and 5-1/2" 17# pipe =

Length of annular space (packer @ 4614' MD) =

Total annular space =

Total annular space =

Estimated initial wellhead volume available for N2 =

P1 = Initial pressure of N2 =

T1 & T2 = temperature of N2 =

z factor for N2 @ 100 psia and 60 deg F =

No of moles (n) N2 = $[100 \text{ psia} \times \text{N2 cuft}] / [0.995 \times 10.732 \times (460+60)]$

0.2607	cuft/ft
4,614.0	ft
1,202.9	feet ³
214.2	barrels
0.60	cuft
100.0	psia
60.0	F
0.995	
0.0108	moles

Volumetric Temperature Coefficient of Water, β (www.engineeringtoolbox.com/volumetric-temperature-expansion-d_315.html)

Deg C	Deg F	β , m ³ /m ³ deg C
30.0	86.0	0.000303
32.2	90.0	0.000321
40.0	104.0	0.000385

$$P2 = znR(T2)/(V2)$$

(Tf - Ti) = delta Temp, deg C	β	delta Vol, m ³	V _{wi} , m ³	V _{wf} , m ³	Delta Vol, m ³	Delta Vol, cuft	V2, cuft	P1, psia	P2, psia for 0.6 cuft
0.25	0.000321	1.000080	34.0617	34.0644	0.002733	0.096530	0.503470	100.0	119.2
0.00	0.000321	1.000000	34.0617	34.0617	0.000000	0.000000	0.600000	100.0	100.0
-0.25	0.000321	0.999920	34.0617	34.0589	-0.002733	-0.096530	0.696530	100.0	86.1
-0.50	0.000321	0.999840	34.0617	34.0562	-0.005467	-0.193061	0.793061	100.0	75.7
-0.75	0.000321	0.999759	34.0617	34.0535	-0.008200	-0.289591	0.889591	100.0	67.4
-1.00	0.000321	0.999679	34.0617	34.0507	-0.010934	-0.386121	0.986121	100.0	60.8
-1.50	0.000321	0.999519	34.0617	34.0453	-0.016401	-0.579182	1.179182	100.0	50.9
-2.00	0.000321	0.999358	34.0617	34.0398	-0.021868	-0.772242	1.372242	100.0	43.7
-2.50	0.000321	0.999198	34.0617	34.0343	-0.027334	-0.965303	1.565303	100.0	38.3
-3.00	0.000321	0.999037	34.0617	34.0289	-0.032801	-1.158364	1.758364	100.0	34.1
-3.50	0.000321	0.998877	34.0617	34.0234	-0.038268	-1.351424	1.951424	100.0	30.7
-4.00	0.000321	0.998716	34.0617	34.0179	-0.043735	-1.544485	2.144485	100.0	28.0
-4.50	0.000321	0.998556	34.0617	34.0125	-0.049202	-1.737545	2.337545	100.0	25.7

$$V_{wf} = V_{wi} \times [1 + \beta (T_f - T_i)]$$

V_{wi} = Initial water volume, m³

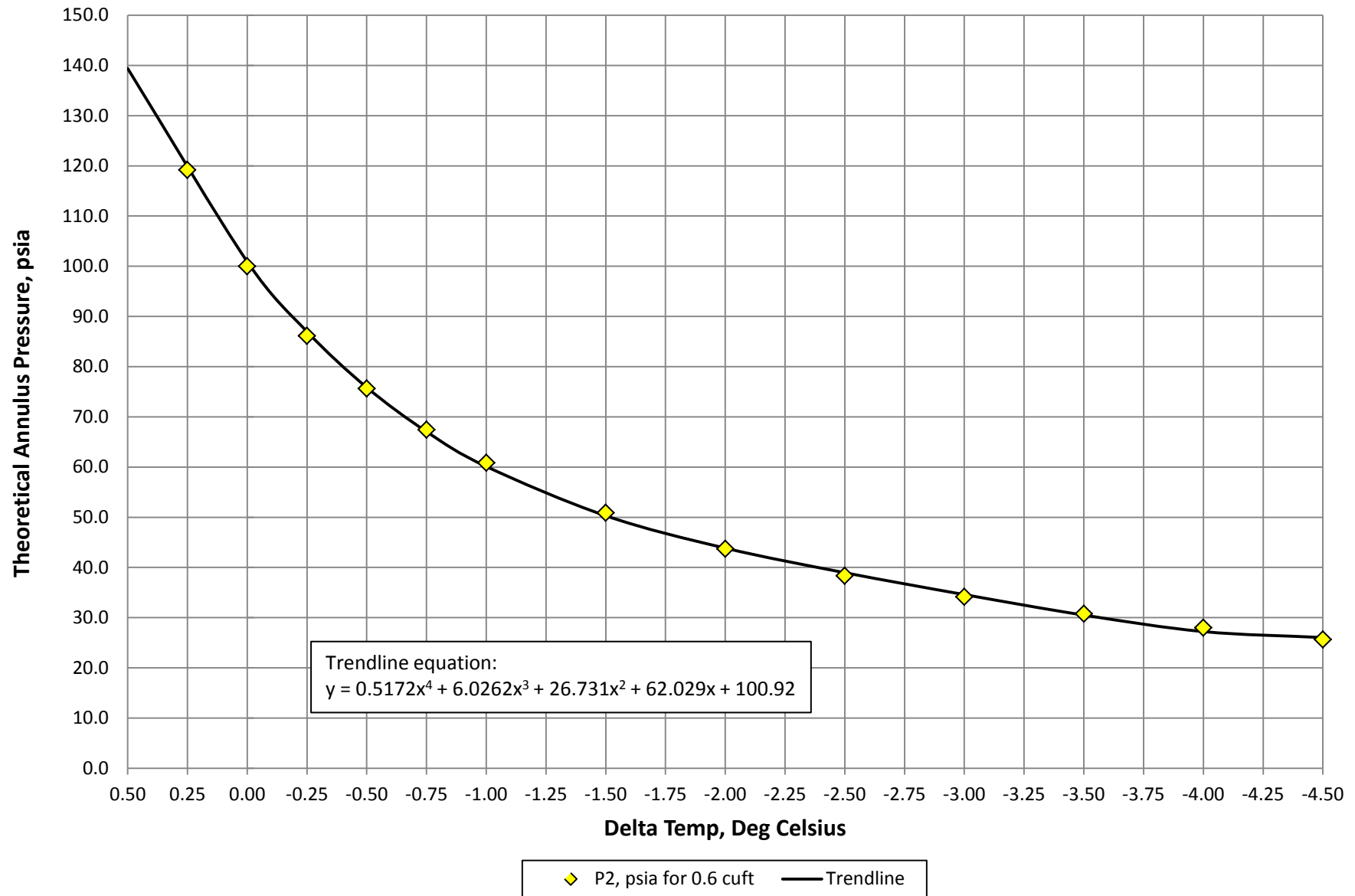
V_{wf} = Final water volume, m³

Ti = Initial water temperature, °C

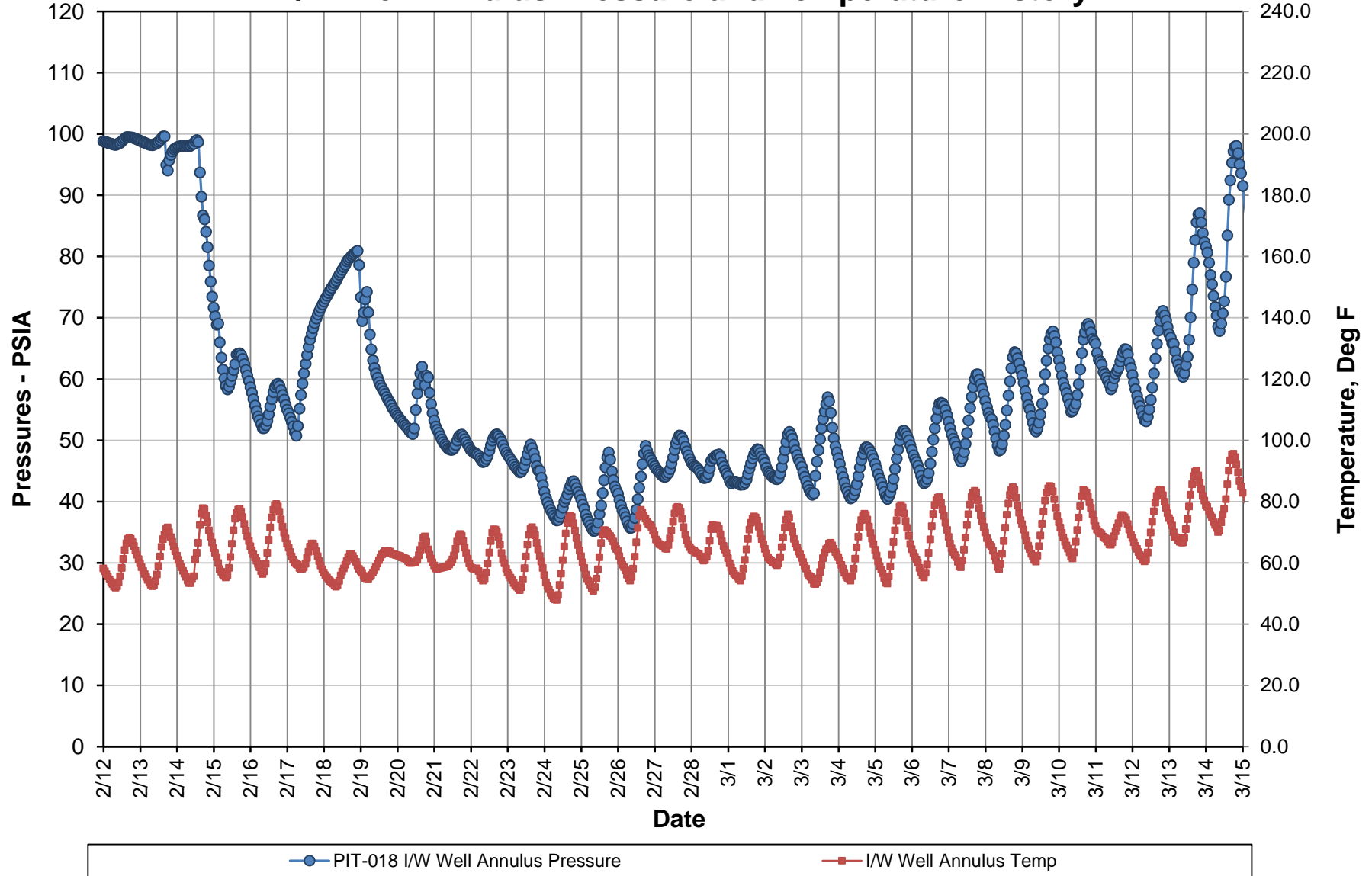
Tf = Final water temperature, °C

β = Volumetric temperature co-efficient of water, m³/m³ °C

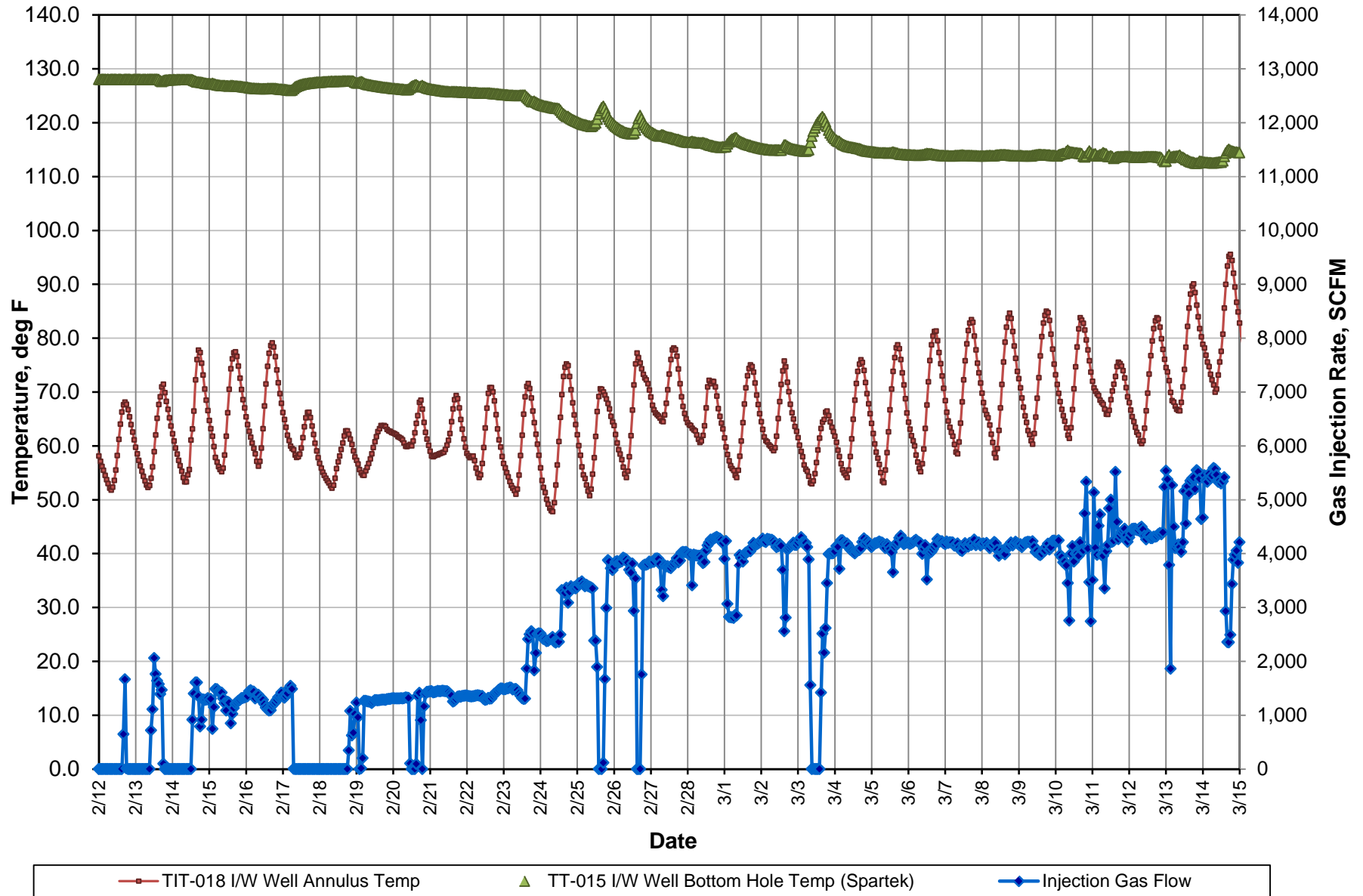
**Annulus Pressure vs Average Water Temperature Change in I/W Annulus
For a Nitrogen Cushion @ Initial Conditions of 100 psi and 60 F**



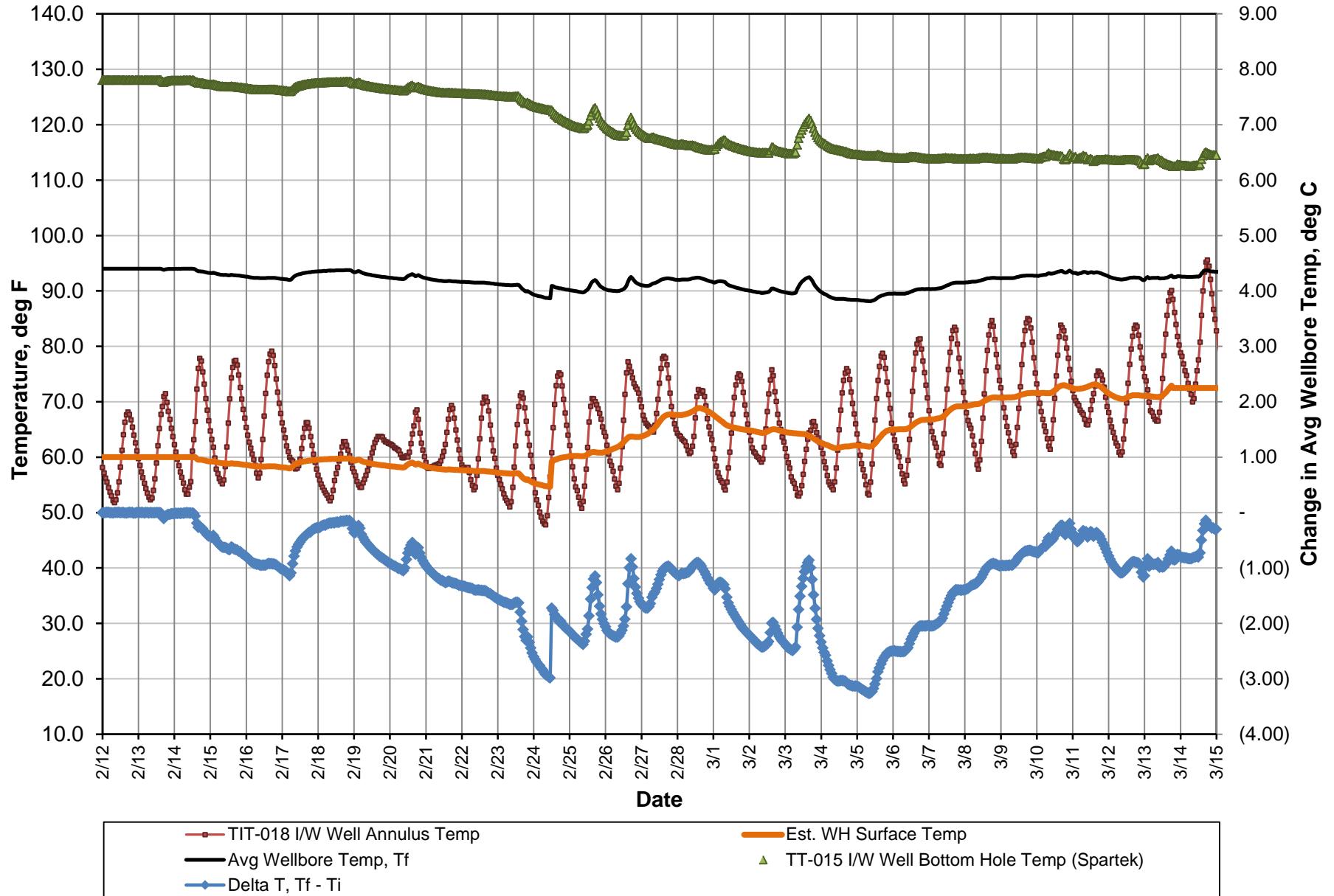
I/W Well Annulus Pressure and Temperature History



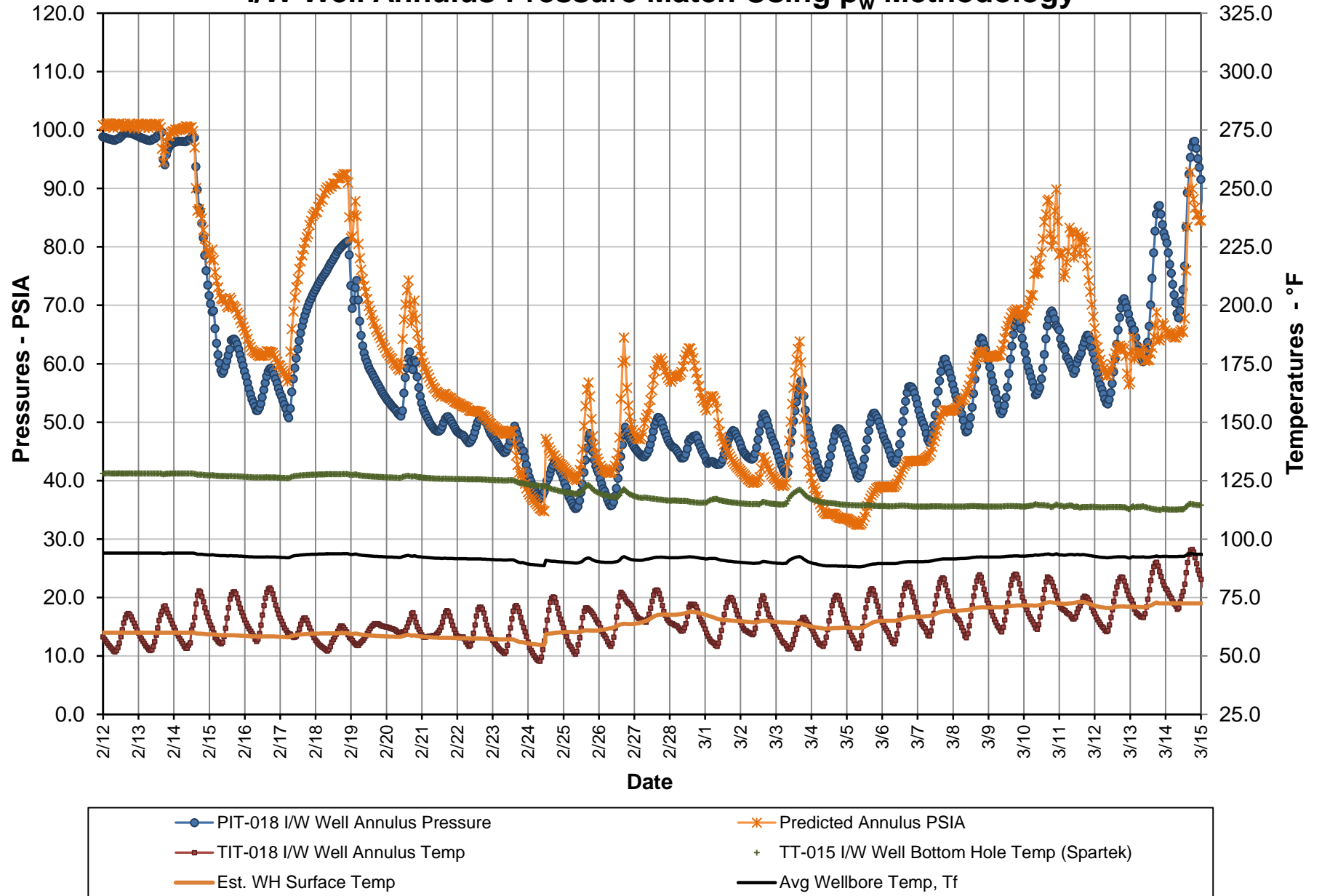
I/W Well Temperatures and Injection Rate for Initial 30 Days of Operation



I/W Well Annulus and BH Temperatures and Change in Avg Wellbore Temp



I/W Well Annulus Pressure Match Using ρ_w Methodology



HOURLY FIELD DATA

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Tue 2/10 0	45.9	14	128.009	14.3	58.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.22	0	0	-
Tue 2/10 1	45.2	14	128.044	14.2	57.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.82	0	0	-
Tue 2/10 2	45.7	14	128.053	14.2	56.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.97	0	0	-
Tue 2/10 3	45.7	14	128.026	14.2	55.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.52	0	0	-
Tue 2/10 4	45.1	14	128.027	14.2	54.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.53	0	0	-
Tue 2/10 5	44.1	14	128.026	14.1	54.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.51	0	0	-
Tue 2/10 6	42.9	14	128.048	14.1	53.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.88	0	0	-
Tue 2/10 7	42.3	14	128.020	14.1	52.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.41	0	0	-
Tue 2/10 8	42.4	14	128.046	14.1	52.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.85	0	0	-
Tue 2/10 9	50.5	14	128.014	14.2	52.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.30	0	0	-
Tue 2/10 10	62.4	14	128.025	14.3	53.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.49	0	0	-
Tue 2/10 11	71.3	14	128.042	14.3	55.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.78	0	0	-
Tue 2/10 12	75.4	14	128.018	14.4	58.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.38	0	0	-
Tue 2/10 13	77.4	14	128.033	14.6	59.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.62	0	0	-
Tue 2/10 14	80.7	14	128.045	14.7	61.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.83	0	0	-
Tue 2/10 15	77.9	14	128.036	14.7	62.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.68	0	0	-
Tue 2/10 16	70.0	14	128.059	84.1	63.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.07	0	0	-
Tue 2/10 17	67.5	14	128.028	99.6	62.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.54	0	0	-
Tue 2/10 18	62.3	14	128.050	99.5	62.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.92	148	138	15
Tue 2/10 19	56.0	14	128.061	99.4	61.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.11	0	0	-
Tue 2/10 20	51.6	14	128.056	99.3	59.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.03	0	0	-
Tue 2/10 21	48.9	14	128.057	99.2	58.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.05	0	0	-
Tue 2/10 22	46.4	14	128.046	99.0	57.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.86	0	0	-
Tue 2/10 23	44.8	14	128.016	98.9	56.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.34	0	0	-
Wed 2/11 0	44.3	14	128.029	98.8	55.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.56	0	0	-
Wed 2/11 1	42.9	14	128.032	98.7	54.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.61	0	0	-
Wed 2/11 2	42.1	14	128.027	98.6	53.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.53	0	0	-
Wed 2/11 3	41.6	14	128.045	98.5	52.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.83	0	0	-
Wed 2/11 4	41.3	14	128.031	98.4	51.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.59	0	0	-
Wed 2/11 5	40.4	14	128.052	98.3	50.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.95	0	0	-
Wed 2/11 6	39.3	14	128.059	98.2	50.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.07	0	0	-
Wed 2/11 7	38.8	14	128.061	98.1	49.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.10	0	0	-
Wed 2/11 8	39.4	14	128.017	98.1	49.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.35	0	0	-
Wed 2/11 9	48.4	14	128.007	98.2	49.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.18	0	0	-
Wed 2/11 10	62.8	14	128.013	98.4	51.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.29	0	0	-
Wed 2/11 11	78.4	14	128.044	98.4	53.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.82	286	279	10
Wed 2/11 12	87.2	14	128.020	98.7	56.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.41	252	254	(2)
Wed 2/11 13	89.7	14	128.061	98.9	59.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.10	70	72	(2)
Wed 2/11 14	89.9	14	128.036	99.2	61.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.68	0	0	-
Wed 2/11 15	91.5	14	128.029	99.3	63.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.55	0	0	-
Wed 2/11 16	85.3	15	128.036	99.3	64.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.68	0	0	-
Wed 2/11 17	75.4	17	128.047	99.2	65.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.87	0	0	-
Wed 2/11 18	66.3	17	128.049	99.2	64.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.91	0	0	-
Wed 2/11 19	60.4	18	128.060	99.2	63.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.08	0	0	-
Wed 2/11 20	56.6	18	128.015	99.1	62.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.32	0	0	-
Wed 2/11 21	54.0	19	128.048	99.1	61.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.89	0	0	-
Wed 2/11 22	51.9	19	128.055	99.0	60.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.01	0	0	-
Wed 2/11 23	49.9	20	128.060	98.9	59.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.10	0	0	-
Thu 2/12 0	48.8	20	128.041	98.8	58.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.77	0	0	-
Thu 2/12 1	48.0	21	128.029	98.7	57.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.56	0	0	-

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Thu 2/12 2	47.8	21	128.048	98.6	56.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.89	0	0	-
Thu 2/12 3	46.8	22	128.062	98.5	55.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.13	0	0	-
Thu 2/12 4	45.5	22	128.064	98.5	54.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.16	0	0	-
Thu 2/12 5	44.6	23	128.033	98.4	53.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.64	0	0	-
Thu 2/12 6	43.9	24	128.042	98.3	53.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.79	0	0	-
Thu 2/12 7	43.3	24	128.017	98.2	52.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.35	0	0	-
Thu 2/12 8	43.4	25	128.058	98.2	51.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.05	0	0	-
Thu 2/12 9	52.3	26	128.048	98.3	52.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.89	0	0	-
Thu 2/12 10	66.0	27	128.055	98.5	53.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.01	0	0	-
Thu 2/12 11	79.2	28	128.062	98.5	55.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.12	0	0	-
Thu 2/12 12	89.5	29	128.033	98.8	58.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.62	0	0	-
Thu 2/12 13	94.7	31	128.048	99.0	61.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.88	0	0	-
Thu 2/12 14	97.6	32	128.057	99.3	64.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.05	0	0	-
Thu 2/12 15	95.5	33	128.027	99.5	66.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.52	0	0	-
Thu 2/12 16	95.8	34	128.027	99.5	67.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.52	646	629	25
Thu 2/12 17	88.1	35	128.043	99.4	68.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.80	1,667	1,649	25
Thu 2/12 18	75.9	35	128.061	99.4	67.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.11	13	11	3
Thu 2/12 19	65.5	36	128.045	99.4	66.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.83	0	0	-
Thu 2/12 20	59.3	36	128.050	99.3	65.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.92	0	0	-
Thu 2/12 21	54.8	37	128.010	99.2	64.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.24	0	0	-
Thu 2/12 22	52.0	37	128.024	99.1	62.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.47	0	0	-
Thu 2/12 23	49.9	38	128.053	99.0	61.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.97	0	0	-
Fri 2/13 0	48.4	39	128.061	98.9	59.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.11	0	0	-
Fri 2/13 1	47.2	39	128.047	98.7	58.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.86	0	0	-
Fri 2/13 2	46.2	40	128.053	98.6	57.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.98	0	0	-
Fri 2/13 3	45.5	40	128.047	98.5	56.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.87	0	0	-
Fri 2/13 4	44.7	41	128.019	98.4	55.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.39	0	0	-
Fri 2/13 5	44.1	42	128.057	98.3	54.4	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.05	0	0	-
Fri 2/13 6	43.4	42	128.058	98.3	53.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.06	0	0	-
Fri 2/13 7	43.1	43	128.018	98.2	52.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.36	0	0	-
Fri 2/13 8	44.6	44	128.050	98.2	52.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	100.92	0	0	-
Fri 2/13 9	52.2	45	128.041	98.2	52.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.77	0	0	-
Fri 2/13 10	68.8	46	128.040	98.4	54.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.75	720	725	(5)
Fri 2/13 11	80.1	47	128.038	98.5	56.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.72	1,109	1,105	4
Fri 2/13 12	90.8	49	128.056	98.7	58.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.03	2,063	2,033	30
Fri 2/13 13	96.7	50	128.044	99.0	62.0	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.81	1,764	1,740	24
Fri 2/13 14	99.1	548	128.058	99.3	65.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	0.00	101.06	1,638	1,627	11
Fri 2/13 15	100.1	1,699	128.021	99.6	67.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.43	1,575	1,583	(8)
Fri 2/13 16	98.1	1,699	127.804	99.6	69.1	60.0	60 deg Pre-Inj temp based o	93.9	94.0	(0.07)	96.80	1,392	1,413	(22)
Fri 2/13 17	89.6	1,679	127.656	94.9	70.9	60.0	60 deg Pre-Inj temp based o	93.8	94.0	(0.11)	94.45	1,466	707	759
Fri 2/13 18	76.1	1,653	127.793	94.0	71.5	60.0	60 deg Pre-Inj temp based o	93.9	94.0	(0.07)	96.62	97	104	(7)
Fri 2/13 19	65.6	1,652	127.878	95.7	69.9	60.0	60 deg Pre-Inj temp based o	93.9	94.0	(0.05)	98.02	0	0	-
Fri 2/13 20	59.7	1,652	127.930	96.6	68.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.03)	98.89	0	0	-
Fri 2/13 21	56.2	1,652	127.936	97.1	66.8	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.03)	98.99	0	0	-
Fri 2/13 22	54.4	1,652	127.968	97.5	65.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.02)	99.53	0	0	-
Fri 2/13 23	53.2	1,652	127.982	97.7	63.7	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.02)	99.76	0	0	-
Sat 2/14 0	51.4	1,652	127.983	97.8	62.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.02)	99.77	0	0	-
Sat 2/14 1	50.0	1,652	127.999	97.9	60.9	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.05	0	0	-
Sat 2/14 2	50.0	1,652	127.992	98.0	59.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.02)	99.94	0	0	-
Sat 2/14 3	49.0	1,652	128.006	98.0	58.5	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.17	0	0	-

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Est. WH	Method used to	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Descr	Temp	Tubing	Temp	Annulus	Annulus	Surface Temp	determine surface	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Avg WHT, deg F	wellbore temperature	deg F	deg F	deg C	psia	SCFM	SCFM
		PSIA	°F	PSIA	°F								
Sat 2/14 4	47.2	1,652	127.998	98.0	57.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.03	0	0
Sat 2/14 5	46.7	1,652	128.002	98.0	56.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.10	0	0
Sat 2/14 6	45.2	1,652	128.011	98.0	55.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.25	0	0
Sat 2/14 7	43.5	1,652	128.019	98.0	54.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.38	0	0
Sat 2/14 8	43.0	1,652	128.033	98.0	53.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.00)	100.62	0	0
Sat 2/14 9	51.4	1,652	128.031	98.1	53.3	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.59	0	0
Sat 2/14 10	66.4	1,652	128.020	98.3	54.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.40	0	0
Sat 2/14 11	74.8	1,652	128.016	98.4	55.6	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.33	0	0
Sat 2/14 12	91.9	1,652	128.024	98.8	61.1	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.01)	100.47	0	0
Sat 2/14 13	101.2	1,652	127.985	99.0	63.2	60.0	60 deg Pre-Inj temp based o	94.0	94.0	(0.02)	99.81	914	881
Sat 2/14 14	96.1	1,651	127.816	98.7	66.5	60.0	60 deg Pre-Inj temp based o	93.9	94.0	(0.07)	97.00	1,402	629
Sat 2/14 15	92.9	1,646	127.682	93.7	72.3	59.7	Same Delta T as BHT	93.7	94.0	(0.19)	90.03	1,608	0
Sat 2/14 16	92.1	1,647	127.545	89.8	76.0	59.5	Same Delta T as BHT	93.5	94.0	(0.27)	86.16	1,609	0
Sat 2/14 17	90.0	1,647	127.555	86.7	77.8	59.6	Same Delta T as BHT	93.6	94.0	(0.26)	86.43	1,350	0
Sat 2/14 18	82.3	1,640	127.530	86.1	77.4	59.5	Same Delta T as BHT	93.5	94.0	(0.27)	85.76	790	0
Sat 2/14 19	78.5	1,641	127.496	84.0	75.4	59.5	Same Delta T as BHT	93.5	94.0	(0.29)	84.85	917	0
Sat 2/14 20	76.3	1,644	127.421	81.5	73.2	59.4	Same Delta T as BHT	93.4	94.0	(0.34)	82.90	1,293	0
Sat 2/14 21	73.5	1,644	127.362	78.5	70.6	59.4	Same Delta T as BHT	93.4	94.0	(0.37)	81.40	1,283	0
Sat 2/14 22	71.5	1,644	127.298	75.9	68.5	59.3	Same Delta T as BHT	93.3	94.0	(0.40)	79.84	1,290	0
Sat 2/14 23	69.5	1,644	127.261	73.4	66.6	59.3	Same Delta T as BHT	93.3	94.0	(0.42)	78.96	1,315	0
Sun 2/15 0	68.1	1,643	127.250	71.6	64.7	59.3	Same Delta T as BHT	93.3	94.0	(0.43)	78.71	1,271	225
Sun 2/15 1	67.2	1,644	127.213	70.2	63.2	59.2	Same Delta T as BHT	93.2	94.0	(0.45)	77.85	1,301	0
Sun 2/15 2	64.6	1,641	127.284	68.8	61.8	59.3	Same Delta T as BHT	93.3	94.0	(0.41)	79.50	743	0
Sun 2/15 3	59.0	1,642	127.207	69.0	59.9	59.2	Same Delta T as BHT	93.2	94.0	(0.45)	77.70	1,147	0
Sun 2/15 4	62.1	1,645	127.115	66.0	57.9	59.1	Same Delta T as BHT	93.1	94.0	(0.51)	75.65	1,487	0
Sun 2/15 5	60.9	1,645	127.046	63.5	57.0	59.0	Same Delta T as BHT	93.0	94.0	(0.54)	74.17	1,484	0
Sun 2/15 6	60.4	1,645	126.993	61.5	56.2	59.0	Same Delta T as BHT	93.0	94.0	(0.57)	73.06	1,441	0
Sun 2/15 7	60.9	1,645	126.935	60.1	55.6	58.9	Same Delta T as BHT	92.9	94.0	(0.61)	71.88	1,427	0
Sun 2/15 8	61.5	1,645	126.899	58.8	55.2	58.9	Same Delta T as BHT	92.9	94.0	(0.63)	71.19	1,420	0
Sun 2/15 9	65.9	1,645	126.892	58.3	55.9	58.9	Same Delta T as BHT	92.9	94.0	(0.63)	71.04	1,310	0
Sun 2/15 10	73.0	1,644	126.894	58.7	58.3	58.9	Same Delta T as BHT	92.9	94.0	(0.63)	71.08	1,225	0
Sun 2/15 11	78.8	1,644	126.869	59.6	61.8	58.9	Same Delta T as BHT	92.9	94.0	(0.64)	70.60	1,085	0
Sun 2/15 12	84.5	1,644	126.832	60.5	66.2	58.8	Same Delta T as BHT	92.8	94.0	(0.66)	69.89	1,250	0
Sun 2/15 13	88.4	1,644	126.817	61.4	70.5	58.8	Same Delta T as BHT	92.8	94.0	(0.67)	69.62	1,228	0
Sun 2/15 14	89.6	1,643	126.904	62.4	74.3	58.9	Same Delta T as BHT	92.9	94.0	(0.62)	71.27	849	0
Sun 2/15 15	87.6	1,642	126.885	64.0	76.2	58.9	Same Delta T as BHT	92.9	94.0	(0.63)	70.91	1,022	0
Sun 2/15 16	87.0	1,643	126.835	64.1	77.3	58.8	Same Delta T as BHT	92.8	94.0	(0.66)	69.96	1,131	0
Sun 2/15 17	85.7	1,644	126.822	64.2	77.5	58.8	Same Delta T as BHT	92.8	94.0	(0.67)	69.72	1,212	0
Sun 2/15 18	83.2	1,644	126.805	63.9	76.6	58.8	Same Delta T as BHT	92.8	94.0	(0.68)	69.40	1,240	0
Sun 2/15 19	79.4	1,644	126.769	63.3	74.8	58.8	Same Delta T as BHT	92.8	94.0	(0.70)	68.73	1,268	0
Sun 2/15 20	76.5	1,644	126.750	62.4	72.6	58.7	Same Delta T as BHT	92.7	94.0	(0.71)	68.38	1,286	0
Sun 2/15 21	74.2	1,644	126.701	61.5	70.5	58.7	Same Delta T as BHT	92.7	94.0	(0.74)	67.51	1,315	0
Sun 2/15 22	73.3	1,645	126.669	60.6	68.6	58.7	Same Delta T as BHT	92.7	94.0	(0.75)	66.95	1,319	0
Sun 2/15 23	71.3	1,645	126.627	59.7	67.1	58.6	Same Delta T as BHT	92.6	94.0	(0.78)	66.24	1,330	0
Mon 2/16 0	69.6	1,645	126.593	58.7	65.4	58.6	Same Delta T as BHT	92.6	94.0	(0.80)	65.66	1,340	0
Mon 2/16 1	68.8	1,645	126.556	57.7	64.0	58.6	Same Delta T as BHT	92.6	94.0	(0.82)	65.06	1,354	0
Mon 2/16 2	68.0	1,645	126.507	56.7	62.7	58.5	Same Delta T as BHT	92.5	94.0	(0.84)	64.27	1,445	0
Mon 2/16 3	67.8	1,646	126.447	55.7	61.6	58.4	Same Delta T as BHT	92.4	94.0	(0.88)	63.33	1,465	0
Mon 2/16 4	66.5	1,646	126.417	54.7	60.6	58.4	Same Delta T as BHT	92.4	94.0	(0.89)	62.87	1,443	0
Mon 2/16 5	65.2	1,646	126.380	53.9	59.6	58.4	Same Delta T as BHT	92.4	94.0	(0.91)	62.33	1,439	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Est. WH	Method used to	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Descr	Temp	Tubing	Temp	Annulus	Annulus	Surface Temp	determine surface	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Avg WHT, deg F	wellbore temperature	deg F	deg F	deg C	psia	SCFM	SCFM
		PSIA	°F	PSIA	°F								
Mon 2/16 6	64.3	1,645	126.365	53.3	58.5	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.09	1,310	0
Mon 2/16 7	62.4	1,646	126.350	52.7	57.1	58.4	Same Delta T as BHT	92.4	94.0	(0.93)	61.88	1,372	0
Mon 2/16 8	62.8	1,646	126.342	52.0	56.2	58.3	Same Delta T as BHT	92.3	94.0	(0.93)	61.76	1,379	0
Mon 2/16 9	68.7	1,645	126.322	52.0	57.1	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.48	1,301	0
Mon 2/16 10	75.1	1,645	126.310	52.4	59.6	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.30	1,320	0
Mon 2/16 11	81.6	1,645	126.317	53.1	63.2	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.40	1,282	0
Mon 2/16 12	85.8	1,645	126.316	54.2	67.4	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.38	1,203	0
Mon 2/16 13	89.1	1,645	126.317	55.5	71.5	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.40	1,143	0
Mon 2/16 14	90.6	1,645	126.345	56.7	74.8	58.3	Same Delta T as BHT	92.3	94.0	(0.93)	61.80	1,104	0
Mon 2/16 15	91.3	1,645	126.369	57.8	77.2	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.15	1,088	0
Mon 2/16 16	90.6	1,645	126.364	58.7	78.6	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.08	1,091	0
Mon 2/16 17	88.8	1,645	126.360	59.1	79.1	58.4	Same Delta T as BHT	92.4	94.0	(0.93)	62.02	1,178	0
Mon 2/16 18	85.2	1,645	126.356	59.2	78.4	58.4	Same Delta T as BHT	92.4	94.0	(0.93)	61.97	1,211	0
Mon 2/16 19	80.6	1,645	126.348	58.9	76.6	58.3	Same Delta T as BHT	92.3	94.0	(0.93)	61.85	1,240	0
Mon 2/16 20	76.5	1,645	126.321	58.2	74.1	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.45	1,286	0
Mon 2/16 21	75.0	1,645	126.286	57.4	71.7	58.3	Same Delta T as BHT	92.3	94.0	(0.97)	60.96	1,333	0
Mon 2/16 22	73.6	1,646	126.241	56.6	69.7	58.2	Same Delta T as BHT	92.2	94.0	(0.99)	60.34	1,355	0
Mon 2/16 23	71.9	1,646	126.201	55.7	67.9	58.2	Same Delta T as BHT	92.2	94.0	(1.01)	59.78	1,417	0
Tue 2/17 0	71.3	1,646	126.189	55.0	66.2	58.2	Same Delta T as BHT	92.2	94.0	(1.02)	59.63	1,348	0
Tue 2/17 1	69.1	1,646	126.159	54.4	64.9	58.2	Same Delta T as BHT	92.2	94.0	(1.04)	59.23	1,325	0
Tue 2/17 2	67.6	1,646	126.124	53.7	63.5	58.1	Same Delta T as BHT	92.1	94.0	(1.06)	58.78	1,357	0
Tue 2/17 3	67.8	1,646	126.093	53.0	62.0	58.1	Same Delta T as BHT	92.1	94.0	(1.07)	58.38	1,405	0
Tue 2/17 4	66.9	1,646	126.030	52.3	61.0	58.0	Same Delta T as BHT	92.0	94.0	(1.11)	57.59	1,498	0
Tue 2/17 5	65.0	1,646	125.975	51.2	60.0	58.0	Same Delta T as BHT	92.0	94.0	(1.14)	56.92	1,545	0
Tue 2/17 6	68.4	1,646	126.065	50.7	59.5	58.1	Same Delta T as BHT	92.1	94.0	(1.09)	58.02	1,486	0
Tue 2/17 7	58.5	1,640	126.363	52.3	59.3	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.07	7	11
Tue 2/17 8	52.7	1,638	126.608	55.1	58.3	58.6	Same Delta T as BHT	92.6	94.0	(0.79)	65.92	0	0
Tue 2/17 9	54.2	1,636	126.779	57.4	57.9	58.8	Same Delta T as BHT	92.8	94.0	(0.69)	68.90	0	0
Tue 2/17 10	57.8	1,635	126.908	59.3	58.0	58.9	Same Delta T as BHT	92.9	94.0	(0.62)	71.37	0	0
Tue 2/17 11	60.5	1,635	126.994	60.9	58.5	59.0	Same Delta T as BHT	93.0	94.0	(0.57)	73.09	0	0
Tue 2/17 12	68.0	1,634	127.062	62.5	59.6	59.1	Same Delta T as BHT	93.1	94.0	(0.53)	74.51	0	0
Tue 2/17 13	78.8	1,634	127.140	63.9	61.5	59.1	Same Delta T as BHT	93.1	94.0	(0.49)	76.20	0	0
Tue 2/17 14	85.3	1,633	127.198	65.2	63.6	59.2	Same Delta T as BHT	93.2	94.0	(0.46)	77.50	0	0
Tue 2/17 15	85.6	1,633	127.243	66.4	65.2	59.2	Same Delta T as BHT	93.2	94.0	(0.43)	78.54	0	0
Tue 2/17 16	82.8	1,633	127.288	67.4	66.2	59.3	Same Delta T as BHT	93.3	94.0	(0.41)	79.61	0	0
Tue 2/17 17	75.3	1,633	127.334	68.3	66.2	59.3	Same Delta T as BHT	93.3	94.0	(0.38)	80.71	0	0
Tue 2/17 18	64.8	1,632	127.371	69.1	65.3	59.4	Same Delta T as BHT	93.4	94.0	(0.36)	81.62	0	0
Tue 2/17 19	56.4	1,632	127.393	69.8	63.7	59.4	Same Delta T as BHT	93.4	94.0	(0.35)	82.19	0	0
Tue 2/17 20	53.4	1,632	127.454	70.5	62.1	59.5	Same Delta T as BHT	93.5	94.0	(0.32)	83.73	0	0
Tue 2/17 21	52.4	1,632	127.481	71.1	60.5	59.5	Same Delta T as BHT	93.5	94.0	(0.30)	84.44	0	0
Tue 2/17 22	51.9	1,632	127.512	71.6	59.1	59.5	Same Delta T as BHT	93.5	94.0	(0.28)	85.28	0	0
Tue 2/17 23	51.3	1,632	127.525	72.1	57.8	59.5	Same Delta T as BHT	93.5	94.0	(0.28)	85.62	0	0
Wed 2/18 0	50.7	1,631	127.538	72.6	56.8	59.5	Same Delta T as BHT	93.5	94.0	(0.27)	85.98	0	0
Wed 2/18 1	50.0	1,631	127.537	73.1	55.9	59.5	Same Delta T as BHT	93.5	94.0	(0.27)	85.96	0	0
Wed 2/18 2	49.5	1,631	127.570	73.6	55.1	59.6	Same Delta T as BHT	93.6	94.0	(0.25)	86.86	0	0
Wed 2/18 3	49.0	1,631	127.602	74.0	54.5	59.6	Same Delta T as BHT	93.6	94.0	(0.24)	87.73	0	0
Wed 2/18 4	48.2	1,631	127.618	74.5	54.0	59.6	Same Delta T as BHT	93.6	94.0	(0.23)	88.19	0	0
Wed 2/18 5	47.8	1,631	127.612	74.9	53.5	59.6	Same Delta T as BHT	93.6	94.0	(0.23)	88.03	0	0
Wed 2/18 6	47.2	1,631	127.651	75.3	53.1	59.7	Same Delta T as BHT	93.7	94.0	(0.21)	89.15	0	0
Wed 2/18 7	45.3	1,631	127.672	75.6	52.6	59.7	Same Delta T as BHT	93.7	94.0	(0.20)	89.75	0	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Wed 2/18 8	44.4	1,631	127.686	76.0	52.2	59.7	Same Delta T as BHT	93.7	94.0	(0.19)	90.16	0	0	-
Wed 2/18 9	52.4	1,631	127.678	76.5	52.7	59.7	Same Delta T as BHT	93.7	94.0	(0.19)	89.90	0	0	-
Wed 2/18 10	67.3	1,631	127.695	77.0	54.0	59.7	Same Delta T as BHT	93.7	94.0	(0.18)	90.40	0	0	-
Wed 2/18 11	67.7	1,631	127.692	77.4	55.8	59.7	Same Delta T as BHT	93.7	94.0	(0.18)	90.33	0	0	-
Wed 2/18 12	65.2	1,631	127.710	77.8	57.1	59.7	Same Delta T as BHT	93.7	94.0	(0.18)	90.85	0	0	-
Wed 2/18 13	64.5	1,631	127.708	78.2	58.1	59.7	Same Delta T as BHT	93.7	94.0	(0.18)	90.79	0	0	-
Wed 2/18 14	66.7	1,631	127.707	78.6	59.3	59.7	Same Delta T as BHT	93.7	94.0	(0.18)	90.76	0	0	-
Wed 2/18 15	75.8	1,631	127.739	79.2	60.5	59.7	Same Delta T as BHT	93.7	94.0	(0.16)	91.72	0	0	-
Wed 2/18 16	81.7	1,630	127.740	79.5	61.8	59.7	Same Delta T as BHT	93.7	94.0	(0.16)	91.73	0	0	-
Wed 2/18 17	79.4	1,631	127.742	79.8	62.8	59.7	Same Delta T as BHT	93.7	94.0	(0.16)	91.80	0	0	-
Wed 2/18 18	71.1	1,630	127.753	80.1	62.8	59.8	Same Delta T as BHT	93.8	94.0	(0.15)	92.14	0	0	-
Wed 2/18 19	64.0	1,630	127.762	80.3	62.1	59.8	Same Delta T as BHT	93.8	94.0	(0.15)	92.41	344	306	55
Wed 2/18 20	62.6	1,630	127.761	80.5	61.3	59.8	Same Delta T as BHT	93.8	94.0	(0.15)	92.37	1,077	1,026	73
Wed 2/18 21	54.6	1,630	127.763	80.8	60.3	59.8	Same Delta T as BHT	93.8	94.0	(0.15)	92.44	626	611	21
Wed 2/18 22	51.3	1,630	127.714	80.9	59.1	59.7	Same Delta T as BHT	93.7	94.0	(0.17)	90.97	673	666	10
Wed 2/18 23	60.7	1,636	127.503	78.6	58.0	59.5	Same Delta T as BHT	93.5	94.0	(0.29)	85.04	1,020	67	1,372
Thu 2/19 0	62.1	1,639	127.365	73.3	57.3	59.4	Same Delta T as BHT	93.4	94.0	(0.37)	81.49	1,233	0	1,776
Thu 2/19 1	60.5	1,640	127.378	69.4	56.7	59.4	Same Delta T as BHT	93.4	94.0	(0.36)	81.80	962	0	1,386
Thu 2/19 2	53.3	1,634	127.517	70.8	55.6	59.5	Same Delta T as BHT	93.5	94.0	(0.28)	85.40	0	0	-
Thu 2/19 3	50.3	1,633	127.604	73.0	55.0	59.6	Same Delta T as BHT	93.6	94.0	(0.23)	87.80	14	0	20
Thu 2/19 4	50.8	1,633	127.512	74.2	54.6	59.5	Same Delta T as BHT	93.5	94.0	(0.29)	85.27	200	0	288
Thu 2/19 5	62.8	1,640	127.323	70.9	54.5	59.3	Same Delta T as BHT	93.3	94.0	(0.39)	80.46	1,268	0	1,825
Thu 2/19 6	64.0	1,641	127.221	67.2	55.4	59.2	Same Delta T as BHT	93.2	94.0	(0.45)	78.04	1,264	0	1,820
Thu 2/19 7	64.6	1,642	127.134	64.8	56.0	59.1	Same Delta T as BHT	93.1	94.0	(0.49)	76.07	1,258	0	1,812
Thu 2/19 8	65.7	1,643	127.059	63.0	56.8	59.1	Same Delta T as BHT	93.1	94.0	(0.54)	74.45	1,253	0	1,804
Thu 2/19 9	67.3	1,643	127.006	61.8	57.6	59.0	Same Delta T as BHT	93.0	94.0	(0.57)	73.32	1,244	0	1,792
Thu 2/19 10	69.2	1,644	126.955	60.9	58.6	59.0	Same Delta T as BHT	93.0	94.0	(0.59)	72.29	1,225	0	1,764
Thu 2/19 11	71.0	1,644	126.893	60.2	59.7	58.9	Same Delta T as BHT	92.9	94.0	(0.63)	71.07	1,255	0	1,807
Thu 2/19 12	71.8	1,644	126.831	59.5	60.8	58.8	Same Delta T as BHT	92.8	94.0	(0.66)	69.88	1,277	0	1,840
Thu 2/19 13	72.1	1,645	126.789	58.9	61.7	58.8	Same Delta T as BHT	92.8	94.0	(0.69)	69.09	1,282	0	1,846
Thu 2/19 14	73.0	1,645	126.748	58.5	62.7	58.7	Same Delta T as BHT	92.7	94.0	(0.71)	68.36	1,276	0	1,838
Thu 2/19 15	72.6	1,645	126.694	58.0	63.2	58.7	Same Delta T as BHT	92.7	94.0	(0.74)	67.39	1,281	0	1,845
Thu 2/19 16	72.3	1,645	126.661	57.6	63.8	58.7	Same Delta T as BHT	92.7	94.0	(0.76)	66.81	1,285	0	1,851
Thu 2/19 17	71.9	1,645	126.604	57.1	63.7	58.6	Same Delta T as BHT	92.6	94.0	(0.79)	65.85	1,287	0	1,853
Thu 2/19 18	71.4	1,645	126.581	56.6	63.8	58.6	Same Delta T as BHT	92.6	94.0	(0.80)	65.46	1,290	0	1,858
Thu 2/19 19	71.2	1,646	126.543	56.2	63.6	58.5	Same Delta T as BHT	92.5	94.0	(0.82)	64.84	1,286	0	1,851
Thu 2/19 20	70.5	1,646	126.515	55.7	63.1	58.5	Same Delta T as BHT	92.5	94.0	(0.84)	64.39	1,298	0	1,869
Thu 2/19 21	70.0	1,646	126.471	55.2	62.8	58.5	Same Delta T as BHT	92.5	94.0	(0.86)	63.70	1,302	0	1,876
Thu 2/19 22	69.8	1,646	126.439	54.8	62.7	58.4	Same Delta T as BHT	92.4	94.0	(0.88)	63.20	1,301	0	1,874
Thu 2/19 23	70.1	1,646	126.405	54.4	62.5	58.4	Same Delta T as BHT	92.4	94.0	(0.90)	62.70	1,311	0	1,889
Fri 2/20 0	70.1	1,646	126.365	54.0	62.4	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.09	1,315	0	1,893
Fri 2/20 1	69.6	1,646	126.345	53.7	62.3	58.3	Same Delta T as BHT	92.3	94.0	(0.93)	61.81	1,313	0	1,890
Fri 2/20 2	69.8	1,646	126.316	53.4	62.1	58.3	Same Delta T as BHT	92.3	94.0	(0.95)	61.38	1,311	0	1,887
Fri 2/20 3	69.4	1,646	126.289	53.0	61.7	58.3	Same Delta T as BHT	92.3	94.0	(0.96)	61.01	1,310	0	1,886
Fri 2/20 4	69.3	1,646	126.270	52.7	61.6	58.3	Same Delta T as BHT	92.3	94.0	(0.97)	60.74	1,309	0	1,885
Fri 2/20 5	69.1	1,646	126.228	52.4	61.4	58.2	Same Delta T as BHT	92.2	94.0	(1.00)	60.15	1,315	0	1,893
Fri 2/20 6	69.1	1,646	126.208	52.2	61.1	58.2	Same Delta T as BHT	92.2	94.0	(1.01)	59.88	1,310	0	1,887
Fri 2/20 7	68.5	1,646	126.190	51.9	60.5	58.2	Same Delta T as BHT	92.2	94.0	(1.02)	59.64	1,314	0	1,892
Fri 2/20 8	67.5	1,646	126.152	51.5	59.9	58.2	Same Delta T as BHT	92.2	94.0	(1.04)	59.13	1,331	0	1,916
Fri 2/20 9	68.4	1,646	126.130	51.2	59.9	58.1	Same Delta T as BHT	92.1	94.0	(1.05)	58.85	1,323	0	1,906

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Fri 2/20 10	69.0	1,646	126.225	51.0	60.1	58.2	Same Delta T as BHT	92.2	94.0	(1.00)	60.11	1,318	0	1,898
Fri 2/20 11	62.0	1,641	126.504	51.9	60.3	58.5	Same Delta T as BHT	92.5	94.0	(0.85)	64.21	102	56	66
Fri 2/20 12	59.2	1,639	126.704	55.0	60.0	58.7	Same Delta T as BHT	92.7	94.0	(0.73)	67.56	0	0	-
Fri 2/20 13	75.9	1,638	126.844	57.6	60.9	58.8	Same Delta T as BHT	92.8	94.0	(0.66)	70.12	0	0	-
Fri 2/20 14	87.1	1,637	126.970	59.2	62.4	59.0	Same Delta T as BHT	93.0	94.0	(0.59)	72.59	0	0	-
Fri 2/20 15	89.4	1,636	127.050	60.9	64.2	59.0	Same Delta T as BHT	93.0	94.0	(0.54)	74.24	97	90	9
Fri 2/20 16	87.7	1,638	126.850	62.0	65.6	58.9	Same Delta T as BHT	92.9	94.0	(0.65)	70.24	1,360	615	1,073
Fri 2/20 17	79.9	1,643	126.668	60.4	68.1	58.7	Same Delta T as BHT	92.7	94.0	(0.75)	66.93	1,416	0	2,039
Fri 2/20 18	75.8	1,642	126.744	59.0	68.5	58.7	Same Delta T as BHT	92.7	94.0	(0.71)	68.28	906	0	1,305
Fri 2/20 19	64.7	1,638	126.880	60.6	66.8	58.9	Same Delta T as BHT	92.9	94.0	(0.64)	70.81	0	0	-
Fri 2/20 20	64.2	1,642	126.709	60.2	64.4	58.7	Same Delta T as BHT	92.7	94.0	(0.73)	67.65	1,162	0	1,674
Fri 2/20 21	67.3	1,644	126.564	57.7	62.5	58.6	Same Delta T as BHT	92.6	94.0	(0.81)	65.19	1,398	0	2,013
Fri 2/20 22	66.8	1,645	126.462	55.9	61.3	58.5	Same Delta T as BHT	92.5	94.0	(0.87)	63.56	1,431	0	2,060
Fri 2/20 23	65.7	1,646	126.370	54.4	60.1	58.4	Same Delta T as BHT	92.4	94.0	(0.92)	62.17	1,438	0	2,071
Sat 2/21 0	65.1	1,646	126.303	53.2	59.0	58.3	Same Delta T as BHT	92.3	94.0	(0.96)	61.20	1,443	0	2,078
Sat 2/21 1	65.8	1,646	126.233	52.3	58.1	58.2	Same Delta T as BHT	92.2	94.0	(1.00)	60.22	1,445	0	2,081
Sat 2/21 2	68.7	1,647	126.179	51.7	58.0	58.2	Same Delta T as BHT	92.2	94.0	(1.03)	59.50	1,421	0	2,047
Sat 2/21 3	67.9	1,647	126.121	51.2	58.2	58.1	Same Delta T as BHT	92.1	94.0	(1.06)	58.73	1,429	0	2,058
Sat 2/21 4	66.8	1,647	126.076	50.6	58.3	58.1	Same Delta T as BHT	92.1	94.0	(1.08)	58.15	1,438	0	2,071
Sat 2/21 5	66.8	1,647	126.031	50.1	58.4	58.0	Same Delta T as BHT	92.0	94.0	(1.11)	57.60	1,449	0	2,086
Sat 2/21 6	66.8	1,647	125.977	49.7	58.5	58.0	Same Delta T as BHT	92.0	94.0	(1.14)	56.94	1,446	0	2,083
Sat 2/21 7	66.8	1,647	125.938	49.3	58.6	57.9	Same Delta T as BHT	91.9	94.0	(1.16)	56.48	1,447	0	2,084
Sat 2/21 8	66.8	1,647	125.891	49.0	58.7	57.9	Same Delta T as BHT	91.9	94.0	(1.19)	55.93	1,457	0	2,097
Sat 2/21 9	67.4	1,648	125.869	48.7	58.9	57.9	Same Delta T as BHT	91.9	94.0	(1.20)	55.68	1,449	0	2,086
Sat 2/21 10	68.2	1,648	125.829	48.5	59.4	57.8	Same Delta T as BHT	91.8	94.0	(1.22)	55.23	1,445	0	2,081
Sat 2/21 11	69.3	1,648	125.808	48.4	60.1	57.8	Same Delta T as BHT	91.8	94.0	(1.23)	55.01	1,445	0	2,082
Sat 2/21 12	71.0	1,648	125.784	48.4	61.0	57.8	Same Delta T as BHT	91.8	94.0	(1.24)	54.74	1,428	0	2,056
Sat 2/21 13	74.3	1,648	125.746	48.7	62.3	57.7	Same Delta T as BHT	91.7	94.0	(1.27)	54.33	1,392	0	2,004
Sat 2/21 14	77.9	1,648	125.767	49.2	64.5	57.8	Same Delta T as BHT	91.8	94.0	(1.25)	54.56	1,366	0	1,967
Sat 2/21 15	80.0	1,647	125.792	49.9	66.9	57.8	Same Delta T as BHT	91.8	94.0	(1.24)	54.83	1,254	0	1,806
Sat 2/21 16	80.1	1,647	125.787	50.6	68.6	57.8	Same Delta T as BHT	91.8	94.0	(1.24)	54.77	1,265	0	1,822
Sat 2/21 17	78.5	1,648	125.758	50.8	69.4	57.8	Same Delta T as BHT	91.8	94.0	(1.26)	54.46	1,299	0	1,870
Sat 2/21 18	76.2	1,647	125.740	50.9	68.8	57.7	Same Delta T as BHT	91.7	94.0	(1.27)	54.27	1,343	0	1,935
Sat 2/21 19	72.0	1,647	125.730	50.6	67.0	57.7	Same Delta T as BHT	91.7	94.0	(1.28)	54.16	1,353	0	1,949
Sat 2/21 20	68.7	1,647	125.720	50.2	64.9	57.7	Same Delta T as BHT	91.7	94.0	(1.28)	54.06	1,344	0	1,936
Sat 2/21 21	66.9	1,647	125.697	49.7	63.1	57.7	Same Delta T as BHT	91.7	94.0	(1.29)	53.82	1,356	0	1,952
Sat 2/21 22	65.6	1,647	125.667	49.2	61.3	57.7	Same Delta T as BHT	91.7	94.0	(1.31)	53.52	1,359	0	1,957
Sat 2/21 23	64.5	1,647	125.655	48.8	59.7	57.7	Same Delta T as BHT	91.7	94.0	(1.32)	53.39	1,364	0	1,965
Sun 2/22 0	64.0	1,647	125.644	48.4	58.6	57.6	Same Delta T as BHT	91.6	94.0	(1.32)	53.27	1,366	0	1,966
Sun 2/22 1	65.1	1,648	125.633	48.1	58.2	57.6	Same Delta T as BHT	91.6	94.0	(1.33)	53.17	1,358	0	1,955
Sun 2/22 2	65.2	1,648	125.626	48.0	57.8	57.6	Same Delta T as BHT	91.6	94.0	(1.33)	53.10	1,353	0	1,948
Sun 2/22 3	65.9	1,648	125.602	47.8	57.9	57.6	Same Delta T as BHT	91.6	94.0	(1.35)	52.86	1,349	0	1,942
Sun 2/22 4	66.3	1,648	125.592	47.7	58.1	57.6	Same Delta T as BHT	91.6	94.0	(1.35)	52.76	1,350	0	1,944
Sun 2/22 5	64.1	1,648	125.582	47.5	57.3	57.6	Same Delta T as BHT	91.6	94.0	(1.36)	52.66	1,357	0	1,954
Sun 2/22 6	61.8	1,648	125.571	47.1	55.9	57.6	Same Delta T as BHT	91.6	94.0	(1.36)	52.55	1,365	0	1,965
Sun 2/22 7	61.2	1,648	125.559	46.7	54.9	57.6	Same Delta T as BHT	91.6	94.0	(1.37)	52.44	1,369	0	1,972
Sun 2/22 8	61.9	1,648	125.521	46.4	54.1	57.5	Same Delta T as BHT	91.5	94.0	(1.39)	52.08	1,366	0	1,967
Sun 2/22 9	66.8	1,648	125.503	46.5	54.6	57.5	Same Delta T as BHT	91.5	94.0	(1.40)	51.90	1,355	0	1,951
Sun 2/22 10	72.3	1,648	125.502	47.0	56.7	57.5	Same Delta T as BHT	91.5	94.0	(1.40)	51.90	1,357	0	1,954
Sun 2/22 11	76.6	1,648	125.508	47.5	59.7	57.5	Same Delta T as BHT	91.5	94.0	(1.40)	51.95	1,302	0	1,875

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Est. WH	Method used to	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Descr	Temp	Tubing	Temp	Annulus	Annulus	Surface Temp	determine surface	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Avg WHT, deg F	wellbore temperature	deg F	deg F	deg C	psia	SCFM	SCFM
		PSIA	°F	PSIA	°F								
Sun 2/22 12	80.5	1,648	125.504	48.3	63.3	57.5	Same Delta T as BHT	91.5	94.0	(1.40)	51.92	1,285	0
Sun 2/22 13	83.8	1,648	125.498	49.2	67.0	57.5	Same Delta T as BHT	91.5	94.0	(1.40)	51.86	1,293	0
Sun 2/22 14	84.3	1,649	125.492	49.9	69.8	57.5	Same Delta T as BHT	91.5	94.0	(1.41)	51.80	1,321	0
Sun 2/22 15	83.0	1,649	125.488	50.5	70.8	57.5	Same Delta T as BHT	91.5	94.0	(1.41)	51.76	1,305	0
Sun 2/22 16	82.0	1,649	125.478	50.9	70.8	57.5	Same Delta T as BHT	91.5	94.0	(1.42)	51.67	1,313	0
Sun 2/22 17	78.9	1,649	125.433	51.0	70.0	57.4	Same Delta T as BHT	91.4	94.0	(1.44)	51.25	1,361	0
Sun 2/22 18	75.3	1,649	125.412	50.7	68.4	57.4	Same Delta T as BHT	91.4	94.0	(1.45)	51.06	1,398	0
Sun 2/22 19	72.2	1,649	125.385	50.3	65.8	57.4	Same Delta T as BHT	91.4	94.0	(1.47)	50.83	1,419	0
Sun 2/22 20	70.3	1,649	125.352	49.8	63.2	57.4	Same Delta T as BHT	91.4	94.0	(1.48)	50.54	1,441	0
Sun 2/22 21	67.8	1,649	125.318	49.2	61.1	57.3	Same Delta T as BHT	91.3	94.0	(1.50)	50.24	1,472	0
Sun 2/22 22	65.5	1,649	125.272	48.6	59.8	57.3	Same Delta T as BHT	91.3	94.0	(1.53)	49.85	1,493	0
Sun 2/22 23	64.9	1,649	125.251	48.0	58.0	57.3	Same Delta T as BHT	91.3	94.0	(1.54)	49.68	1,495	0
Mon 2/23 0	65.7	1,649	125.216	47.6	56.7	57.2	Same Delta T as BHT	91.2	94.0	(1.56)	49.38	1,482	0
Mon 2/23 1	65.1	1,649	125.188	47.2	55.9	57.2	Same Delta T as BHT	91.2	94.0	(1.58)	49.16	1,484	0
Mon 2/23 2	64.5	1,649	125.169	46.8	55.1	57.2	Same Delta T as BHT	91.2	94.0	(1.59)	49.00	1,495	0
Mon 2/23 3	63.4	1,649	125.140	46.5	54.3	57.1	Same Delta T as BHT	91.1	94.0	(1.60)	48.77	1,502	0
Mon 2/23 4	62.3	1,649	125.115	46.0	53.4	57.1	Same Delta T as BHT	91.1	94.0	(1.62)	48.58	1,514	0
Mon 2/23 5	61.1	1,649	125.103	45.6	52.7	57.1	Same Delta T as BHT	91.1	94.0	(1.62)	48.48	1,508	0
Mon 2/23 6	60.5	1,649	125.093	45.3	52.2	57.1	Same Delta T as BHT	91.1	94.0	(1.63)	48.40	1,479	0
Mon 2/23 7	59.8	1,649	125.064	45.0	51.7	57.1	Same Delta T as BHT	91.1	94.0	(1.64)	48.18	1,483	0
Mon 2/23 8	59.8	1,649	125.042	44.7	51.0	57.0	Same Delta T as BHT	91.0	94.0	(1.66)	48.01	1,486	0
Mon 2/23 9	65.0	1,650	125.039	44.8	52.0	57.0	Same Delta T as BHT	91.0	94.0	(1.66)	47.99	1,463	0
Mon 2/23 10	70.5	1,650	125.047	45.3	54.6	57.0	Same Delta T as BHT	91.0	94.0	(1.65)	48.05	1,408	0
Mon 2/23 11	75.8	1,650	125.080	45.9	58.2	57.1	Same Delta T as BHT	91.1	94.0	(1.64)	48.30	1,359	0
Mon 2/23 12	79.0	1,650	125.102	46.8	62.0	57.1	Same Delta T as BHT	91.1	94.0	(1.62)	48.48	1,317	0
Mon 2/23 13	82.7	1,650	125.111	47.7	65.9	57.1	Same Delta T as BHT	91.1	94.0	(1.62)	48.54	1,301	0
Mon 2/23 14	85.1	1,650	125.090	48.7	69.1	57.1	Same Delta T as BHT	91.1	94.0	(1.63)	48.38	1,306	0
Mon 2/23 15	83.5	1,652	124.788	49.3	71.1	56.8	Same Delta T as BHT	90.8	94.0	(1.80)	46.18	1,862	0
Mon 2/23 16	82.5	1,655	124.493	48.7	71.6	56.5	Same Delta T as BHT	90.5	94.0	(1.96)	44.26	2,410	0
Mon 2/23 17	80.1	1,657	124.226	47.9	70.7	56.2	Same Delta T as BHT	90.2	94.0	(2.11)	42.69	2,500	0
Mon 2/23 18	76.3	1,657	123.997	47.0	68.9	56.0	Same Delta T as BHT	90.0	94.0	(2.24)	41.41	2,560	0
Mon 2/23 19	71.9	1,657	123.874	45.8	66.5	55.9	Same Delta T as BHT	89.9	94.0	(2.31)	40.75	2,522	0
Mon 2/23 20	68.2	1,655	123.989	45.0	64.3	56.0	Same Delta T as BHT	90.0	94.0	(2.24)	41.37	1,831	0
Mon 2/23 21	67.3	1,656	123.812	45.0	62.2	55.8	Same Delta T as BHT	89.8	94.0	(2.34)	40.43	2,154	0
Mon 2/23 22	66.5	1,657	123.623	43.9	60.3	55.6	Same Delta T as BHT	89.6	94.0	(2.45)	39.46	2,505	0
Mon 2/23 23	63.4	1,658	123.463	42.7	58.3	55.5	Same Delta T as BHT	89.5	94.0	(2.53)	38.65	2,519	0
Tue 2/24 0	60.8	1,658	123.339	41.6	55.9	55.3	Same Delta T as BHT	89.3	94.0	(2.60)	38.04	2,515	0
Tue 2/24 1	58.1	1,658	123.254	40.6	53.6	55.3	Same Delta T as BHT	89.3	94.0	(2.65)	37.62	2,445	0
Tue 2/24 2	57.8	1,658	123.176	39.9	52.3	55.2	Same Delta T as BHT	89.2	94.0	(2.69)	37.24	2,414	0
Tue 2/24 3	57.2	1,658	123.099	39.2	51.3	55.1	Same Delta T as BHT	89.1	94.0	(2.74)	36.86	2,412	0
Tue 2/24 4	56.2	1,658	123.048	38.6	50.1	55.0	Same Delta T as BHT	89.0	94.0	(2.77)	36.62	2,376	0
Tue 2/24 5	55.9	1,658	122.975	38.1	49.2	55.0	Same Delta T as BHT	89.0	94.0	(2.81)	36.26	2,379	0
Tue 2/24 6	56.8	1,658	122.909	37.7	48.4	54.9	Same Delta T as BHT	88.9	94.0	(2.84)	35.95	2,406	0
Tue 2/24 7	56.2	1,658	122.832	37.3	48.0	54.8	Same Delta T as BHT	88.8	94.0	(2.89)	35.58	2,423	0
Tue 2/24 8	57.2	1,658	122.757	36.9	47.8	54.8	Same Delta T as BHT	88.8	94.0	(2.93)	35.22	2,449	0
Tue 2/24 9	62.5	1,658	122.737	37.0	49.5	54.7	Same Delta T as BHT	88.7	94.0	(2.94)	35.13	2,364	0
Tue 2/24 10	68.7	1,658	122.681	37.5	52.7	54.7	Same Delta T as BHT	88.7	94.0	(2.97)	34.86	2,349	0
Tue 2/24 11	74.1	1,658	122.656	38.1	56.5	54.7	Same Delta T as BHT	88.7	94.0	(2.98)	34.74	2,372	0
Tue 2/24 12	78.3	1,659	122.597	39.0	60.8	59.2	Trailing 2-day moving avg of	90.9	94.0	(1.72)	47.13	2,360	0
Tue 2/24 13	81.9	1,660	122.334	39.9	65.3	59.4	Trailing 2-day moving avg of	90.8	94.0	(1.76)	46.60	2,497	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Tue 2/24 14	83.9	1,664	121.950	40.5	69.5	59.5	Trailing 2-day moving avg of	90.7	94.0	(1.84)	45.71	3,321	0
Tue 2/24 15	85.4	1,665	121.661	41.2	72.9	59.6	Trailing 2-day moving avg of	90.6	94.0	(1.88)	45.15	3,308	0
Tue 2/24 16	85.9	1,666	121.415	42.0	74.6	59.7	Trailing 2-day moving avg of	90.6	94.0	(1.93)	44.67	3,268	0
Tue 2/24 17	86.4	1,667	121.186	42.6	75.2	59.8	Trailing 2-day moving avg of	90.5	94.0	(1.97)	44.23	3,367	0
Tue 2/24 18	84.2	1,666	121.127	43.2	74.9	59.9	Trailing 2-day moving avg of	90.5	94.0	(1.96)	44.30	3,089	0
Tue 2/24 19	79.5	1,667	120.909	43.3	72.9	59.9	Trailing 2-day moving avg of	90.4	94.0	(2.00)	43.81	3,289	0
Tue 2/24 20	76.5	1,668	120.722	42.8	70.4	60.0	Trailing 2-day moving avg of	90.3	94.0	(2.04)	43.38	3,395	0
Tue 2/24 21	73.1	1,668	120.571	42.2	68.0	60.0	Trailing 2-day moving avg of	90.3	94.0	(2.07)	43.06	3,361	0
Tue 2/24 22	71.5	1,668	120.423	41.5	65.7	60.1	Trailing 2-day moving avg of	90.2	94.0	(2.10)	42.78	3,376	0
Tue 2/24 23	70.7	1,668	120.307	41.0	64.0	60.1	Trailing 2-day moving avg of	90.2	94.0	(2.12)	42.61	3,353	0
Wed 2/25 0	67.2	1,668	120.160	40.3	62.1	60.2	Trailing 2-day moving avg of	90.2	94.0	(2.15)	42.33	3,382	0
Wed 2/25 1	65.9	1,669	120.029	39.5	60.1	60.2	Trailing 2-day moving avg of	90.1	94.0	(2.17)	42.07	3,446	0
Wed 2/25 2	63.6	1,669	119.880	38.8	58.3	60.2	Trailing 2-day moving avg of	90.1	94.0	(2.20)	41.75	3,453	0
Wed 2/25 3	60.7	1,669	119.766	37.9	56.1	60.2	Trailing 2-day moving avg of	90.0	94.0	(2.23)	41.45	3,484	0
Wed 2/25 4	60.5	1,669	119.684	37.1	54.6	60.2	Trailing 2-day moving avg of	90.0	94.0	(2.26)	41.20	3,430	0
Wed 2/25 5	60.3	1,669	119.601	36.7	54.0	60.2	Trailing 2-day moving avg of	89.9	94.0	(2.28)	40.96	3,393	0
Wed 2/25 6	58.9	1,669	119.522	36.1	52.8	60.2	Trailing 2-day moving avg of	89.9	94.0	(2.31)	40.72	3,420	0
Wed 2/25 7	58.6	1,669	119.450	35.6	51.6	60.2	Trailing 2-day moving avg of	89.8	94.0	(2.34)	40.48	3,399	0
Wed 2/25 8	58.6	1,669	119.389	35.2	50.8	60.2	Trailing 2-day moving avg of	89.8	94.0	(2.36)	40.25	3,385	0
Wed 2/25 9	63.6	1,669	119.306	35.2	52.0	60.2	Trailing 2-day moving avg of	89.7	94.0	(2.38)	40.05	3,373	0
Wed 2/25 10	68.7	1,669	119.444	35.5	54.8	60.2	Trailing 2-day moving avg of	89.8	94.0	(2.32)	40.60	3,355	0
Wed 2/25 11	73.7	1,665	119.773	36.5	57.8	60.4	Trailing 2-day moving avg of	90.1	94.0	(2.20)	41.80	2,384	0
Wed 2/25 12	78.3	1,665	119.977	37.9	61.8	60.5	Trailing 2-day moving avg of	90.2	94.0	(2.10)	42.78	2,382	0
Wed 2/25 13	83.2	1,663	120.660	39.3	66.4	60.7	Trailing 2-day moving avg of	90.7	94.0	(1.87)	45.36	1,894	0
Wed 2/25 14	91.6	1,656	121.608	41.4	69.2	60.8	Trailing 2-day moving avg of	91.2	94.0	(1.56)	49.34	0	0
Wed 2/25 15	88.8	1,653	122.273	43.5	70.6	60.9	Trailing 2-day moving avg of	91.6	94.0	(1.35)	52.74	3	7
Wed 2/25 16	81.4	1,652	122.786	45.5	70.5	60.9	Trailing 2-day moving avg of	91.9	94.0	(1.20)	55.59	0	0
Wed 2/25 17	83.4	1,651	123.013	47.2	70.0	60.9	Trailing 2-day moving avg of	92.0	94.0	(1.15)	56.78	118	79
Wed 2/25 18	76.3	1,655	122.628	48.0	69.5	60.9	Trailing 2-day moving avg of	91.8	94.0	(1.26)	54.38	1,668	0
Wed 2/25 19	75.7	1,661	121.868	46.8	68.7	60.8	Trailing 2-day moving avg of	91.4	94.0	(1.49)	50.53	2,991	0
Wed 2/25 20	76.2	1,668	121.154	44.9	67.9	60.8	Trailing 2-day moving avg of	91.0	94.0	(1.69)	47.57	3,880	0
Wed 2/25 21	74.7	1,669	120.639	43.5	66.9	60.8	Trailing 2-day moving avg of	90.7	94.0	(1.83)	45.79	3,853	0
Wed 2/25 22	72.2	1,670	120.259	42.4	65.5	60.8	Trailing 2-day moving avg of	90.6	94.0	(1.93)	44.63	3,726	0
Wed 2/25 23	74.7	1,671	119.940	41.8	64.5	60.9	Trailing 2-day moving avg of	90.4	94.0	(2.01)	43.79	3,694	0
Thu 2/26 0	70.5	1,671	119.638	41.2	63.8	61.0	Trailing 2-day moving avg of	90.3	94.0	(2.06)	43.22	3,756	0
Thu 2/26 1	68.3	1,672	119.353	40.3	62.1	61.0	Trailing 2-day moving avg of	90.2	94.0	(2.13)	42.50	3,846	0
Thu 2/26 2	66.2	1,673	119.117	39.4	60.6	61.1	Trailing 2-day moving avg of	90.1	94.0	(2.17)	42.10	3,861	0
Thu 2/26 3	65.5	1,673	118.924	38.6	59.3	61.2	Trailing 2-day moving avg of	90.1	94.0	(2.19)	41.88	3,829	0
Thu 2/26 4	66.6	1,673	118.740	38.1	58.5	61.4	Trailing 2-day moving avg of	90.1	94.0	(2.21)	41.72	3,841	0
Thu 2/26 5	63.5	1,673	118.557	37.5	57.5	61.5	Trailing 2-day moving avg of	90.0	94.0	(2.22)	41.55	3,855	0
Thu 2/26 6	61.4	1,674	118.389	36.7	56.1	61.6	Trailing 2-day moving avg of	90.0	94.0	(2.24)	41.42	3,924	0
Thu 2/26 7	60.7	1,674	118.239	36.1	54.8	61.7	Trailing 2-day moving avg of	90.0	94.0	(2.25)	41.32	3,909	0
Thu 2/26 8	62.2	1,674	118.125	35.7	54.1	61.8	Trailing 2-day moving avg of	90.0	94.0	(2.25)	41.32	3,891	0
Thu 2/26 9	67.5	1,674	118.050	35.7	55.3	62.0	Trailing 2-day moving avg of	90.0	94.0	(2.23)	41.51	3,833	0
Thu 2/26 10	73.4	1,674	118.014	36.3	58.0	62.2	Trailing 2-day moving avg of	90.1	94.0	(2.18)	41.97	3,700	0
Thu 2/26 11	79.5	1,674	117.965	37.3	61.9	62.4	Trailing 2-day moving avg of	90.2	94.0	(2.13)	42.53	3,645	0
Thu 2/26 12	85.1	1,675	117.967	38.7	66.6	62.7	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.34	3,815	0
Thu 2/26 13	89.5	1,672	118.118	40.4	71.3	63.0	Trailing 2-day moving avg of	90.6	94.0	(1.92)	44.71	2,934	0
Thu 2/26 14	92.8	1,675	118.616	42.3	75.2	63.3	Trailing 2-day moving avg of	91.0	94.0	(1.70)	47.38	3,536	0
Thu 2/26 15	90.8	1,662	119.889	44.1	77.2	63.5	Trailing 2-day moving avg of	91.7	94.0	(1.28)	53.98	0	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Thu 2/26 16	85.7	1,659	120.787	46.1	76.4	63.7	Trailing 2-day moving avg of	92.2	94.0	(1.00)	60.18	0	0	-
Thu 2/26 17	80.7	1,657	121.318	47.8	75.4	63.7	Trailing 2-day moving avg of	92.5	94.0	(0.84)	64.48	0	0	-
Thu 2/26 18	81.8	1,660	120.789	49.1	74.3	63.7	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.50	1,756	0	2,529
Thu 2/26 19	83.0	1,670	120.088	48.3	73.3	63.7	Trailing 2-day moving avg of	91.9	94.0	(1.19)	55.84	3,774	0	5,435
Thu 2/26 20	83.4	1,672	119.569	47.5	72.6	63.6	Trailing 2-day moving avg of	91.6	94.0	(1.35)	52.85	3,794	0	5,463
Thu 2/26 21	82.3	1,674	119.168	47.1	72.3	63.6	Trailing 2-day moving avg of	91.4	94.0	(1.46)	50.91	3,793	0	5,462
Thu 2/26 22	80.8	1,674	118.839	46.7	71.6	63.6	Trailing 2-day moving avg of	91.2	94.0	(1.55)	49.59	3,805	0	5,479
Thu 2/26 23	78.7	1,675	118.561	46.2	70.4	63.7	Trailing 2-day moving avg of	91.1	94.0	(1.61)	48.66	3,850	0	5,544
Fri 2/27 0	78.0	1,676	118.340	45.7	69.1	63.8	Trailing 2-day moving avg of	91.0	94.0	(1.65)	48.06	3,828	0	5,512
Fri 2/27 1	77.4	1,676	118.148	45.4	67.5	63.8	Trailing 2-day moving avg of	91.0	94.0	(1.69)	47.61	3,847	0	5,540
Fri 2/27 2	76.8	1,677	117.969	45.0	66.7	63.9	Trailing 2-day moving avg of	90.9	94.0	(1.71)	47.29	3,848	0	5,542
Fri 2/27 3	76.4	1,677	117.805	44.7	66.1	64.0	Trailing 2-day moving avg of	90.9	94.0	(1.72)	47.13	3,905	0	5,623
Fri 2/27 4	75.9	1,677	117.649	44.5	65.8	64.2	Trailing 2-day moving avg of	90.9	94.0	(1.72)	47.12	3,911	0	5,631
Fri 2/27 5	75.4	1,678	117.549	44.2	65.5	64.4	Trailing 2-day moving avg of	91.0	94.0	(1.70)	47.43	3,903	0	5,620
Fri 2/27 6	75.3	1,677	117.540	44.0	65.2	64.6	Trailing 2-day moving avg of	91.1	94.0	(1.64)	48.19	3,805	0	5,479
Fri 2/27 7	74.8	1,676	117.736	44.0	64.6	64.8	Trailing 2-day moving avg of	91.3	94.0	(1.53)	49.84	3,324	0	4,787
Fri 2/27 8	75.7	1,675	117.705	44.4	64.5	65.0	Trailing 2-day moving avg of	91.4	94.0	(1.47)	50.72	3,210	0	4,622
Fri 2/27 9	79.1	1,677	117.556	44.7	65.8	65.3	Trailing 2-day moving avg of	91.4	94.0	(1.44)	51.32	3,783	0	5,447
Fri 2/27 10	82.9	1,678	117.445	45.3	67.9	65.7	Trailing 2-day moving avg of	91.6	94.0	(1.37)	52.40	3,764	0	5,420
Fri 2/27 11	85.7	1,678	117.351	46.2	70.4	66.0	Trailing 2-day moving avg of	91.7	94.0	(1.30)	53.78	3,766	0	5,422
Fri 2/27 12	87.2	1,678	117.294	47.2	73.4	66.4	Trailing 2-day moving avg of	91.8	94.0	(1.21)	55.47	3,744	0	5,391
Fri 2/27 13	88.9	1,679	117.230	48.4	76.0	66.8	Trailing 2-day moving avg of	92.0	94.0	(1.12)	57.22	3,729	0	5,370
Fri 2/27 14	88.7	1,679	117.149	49.4	77.8	67.1	Trailing 2-day moving avg of	92.1	94.0	(1.06)	58.72	3,780	0	5,444
Fri 2/27 15	88.1	1,680	117.068	50.1	78.2	67.3	Trailing 2-day moving avg of	92.2	94.0	(1.02)	59.75	3,810	0	5,487
Fri 2/27 16	86.8	1,680	116.992	50.7	77.9	67.5	Trailing 2-day moving avg of	92.2	94.0	(0.99)	60.42	3,846	0	5,538
Fri 2/27 17	83.7	1,681	116.897	50.7	76.7	67.6	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.60	3,916	0	5,639
Fri 2/27 18	80.7	1,680	116.870	50.4	74.3	67.7	Trailing 2-day moving avg of	92.3	94.0	(0.97)	60.94	3,837	0	5,525
Fri 2/27 19	78.0	1,681	116.766	49.8	71.5	67.7	Trailing 2-day moving avg of	92.2	94.0	(0.99)	60.43	3,868	0	5,571
Fri 2/27 20	76.1	1,681	116.663	48.9	69.1	67.7	Trailing 2-day moving avg of	92.2	94.0	(1.02)	59.68	4,017	0	5,785
Fri 2/27 21	75.1	1,682	116.568	48.2	67.3	67.7	Trailing 2-day moving avg of	92.1	94.0	(1.05)	58.86	4,032	0	5,807
Fri 2/27 22	74.3	1,682	116.493	47.5	66.0	67.7	Trailing 2-day moving avg of	92.1	94.0	(1.08)	58.15	4,025	0	5,796
Fri 2/27 23	73.4	1,682	116.441	46.9	65.0	67.6	Trailing 2-day moving avg of	92.0	94.0	(1.11)	57.59	4,031	0	5,804
Sat 2/28 0	73.3	1,682	116.403	46.4	64.3	67.6	Trailing 2-day moving avg of	92.0	94.0	(1.13)	57.21	4,008	0	5,771
Sat 2/28 1	73.6	1,682	116.361	46.0	63.9	67.6	Trailing 2-day moving avg of	92.0	94.0	(1.14)	56.90	3,984	0	5,736
Sat 2/28 2	73.6	1,682	116.441	45.8	63.8	67.6	Trailing 2-day moving avg of	92.0	94.0	(1.12)	57.38	3,983	0	5,736
Sat 2/28 3	72.6	1,680	116.509	45.6	63.3	67.6	Trailing 2-day moving avg of	92.1	94.0	(1.09)	57.95	3,414	0	4,916
Sat 2/28 4	73.0	1,682	116.423	45.4	63.0	67.7	Trailing 2-day moving avg of	92.0	94.0	(1.10)	57.72	3,980	0	5,732
Sat 2/28 5	73.0	1,682	116.368	45.1	62.8	67.7	Trailing 2-day moving avg of	92.0	94.0	(1.10)	57.81	3,968	0	5,714
Sat 2/28 6	71.2	1,682	116.322	44.7	62.0	67.8	Trailing 2-day moving avg of	92.1	94.0	(1.09)	57.97	3,963	0	5,707
Sat 2/28 7	71.4	1,682	116.280	44.3	61.2	67.9	Trailing 2-day moving avg of	92.1	94.0	(1.08)	58.17	3,958	0	5,699
Sat 2/28 8	70.1	1,683	116.251	43.8	60.7	68.0	Trailing 2-day moving avg of	92.1	94.0	(1.06)	58.57	3,961	0	5,704
Sat 2/28 9	73.2	1,683	116.277	43.8	60.9	68.1	Trailing 2-day moving avg of	92.2	94.0	(1.02)	59.54	3,913	0	5,635
Sat 2/28 10	73.7	1,683	116.288	44.0	62.0	68.2	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.68	3,823	0	5,505
Sat 2/28 11	78.5	1,683	116.230	44.5	63.7	68.4	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.47	3,843	0	5,534
Sat 2/28 12	83.8	1,684	116.129	45.4	67.1	68.6	Trailing 2-day moving avg of	92.4	94.0	(0.92)	62.05	4,057	0	5,842
Sat 2/28 13	85.3	1,685	116.023	46.6	71.0	68.8	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.61	4,154	0	5,981
Sat 2/28 14	81.7	1,685	115.907	47.1	72.2	68.9	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.57	4,204	0	6,054
Sat 2/28 15	79.8	1,686	115.816	47.1	71.5	68.9	Trailing 2-day moving avg of	92.4	94.0	(0.93)	61.93	4,258	0	6,132
Sat 2/28 16	82.2	1,686	115.743	47.5	72.0	68.8	Trailing 2-day moving avg of	92.3	94.0	(0.97)	60.95	4,250	0	6,120
Sat 2/28 17	79.5	1,686	115.658	47.6	71.9	68.7	Trailing 2-day moving avg of	92.2	94.0	(1.02)	59.63	4,278	0	6,160

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009		
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to								
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to	
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere	
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM	MCFD
Sat 2/28 18	80.6	1,687	115.588	47.7	71.0	68.6	Trailing 2-day moving avg of	92.1	94.0	(1.07)	58.47	4,296	0	6,186
Sat 2/28 19	74.8	1,687	115.532	47.3	69.3	68.5	Trailing 2-day moving avg of	92.0	94.0	(1.12)	57.35	4,310	0	6,207
Sat 2/28 20	71.8	1,687	115.482	46.3	66.9	68.3	Trailing 2-day moving avg of	91.9	94.0	(1.17)	56.18	4,293	0	6,181
Sat 2/28 21	71.3	1,687	115.444	45.7	65.5	68.2	Trailing 2-day moving avg of	91.8	94.0	(1.23)	55.08	4,278	0	6,161
Sat 2/28 22	70.9	1,687	115.433	45.1	64.3	68.0	Trailing 2-day moving avg of	91.7	94.0	(1.28)	54.12	4,250	0	6,120
Sat 2/28 23	70.2	1,687	115.518	44.6	63.2	67.8	Trailing 2-day moving avg of	91.7	94.0	(1.30)	53.61	4,192	0	6,037
Sun 3/1 0	67.4	1,685	115.490	44.1	61.5	67.6	Trailing 2-day moving avg of	91.6	94.0	(1.37)	52.47	3,901	0	5,617
Sun 3/1 1	66.3	1,687	115.601	43.3	59.8	67.4	Trailing 2-day moving avg of	91.5	94.0	(1.40)	51.99	4,234	0	6,097
Sun 3/1 2	64.0	1,682	116.084	42.9	58.4	67.2	Trailing 2-day moving avg of	91.6	94.0	(1.32)	53.30	3,068	0	4,418
Sun 3/1 3	63.2	1,680	116.447	43.2	57.2	67.0	Trailing 2-day moving avg of	91.7	94.0	(1.28)	54.11	2,822	0	4,064
Sun 3/1 4	62.4	1,680	116.714	43.2	56.3	66.8	Trailing 2-day moving avg of	91.8	94.0	(1.26)	54.42	2,821	0	4,063
Sun 3/1 5	63.7	1,679	116.923	43.2	55.8	66.6	Trailing 2-day moving avg of	91.8	94.0	(1.26)	54.44	2,815	0	4,054
Sun 3/1 6	62.0	1,679	117.076	43.1	55.4	66.4	Trailing 2-day moving avg of	91.7	94.0	(1.28)	54.15	2,806	0	4,040
Sun 3/1 7	61.2	1,679	117.192	42.9	54.5	66.2	Trailing 2-day moving avg of	91.7	94.0	(1.30)	53.61	2,861	0	4,120
Sun 3/1 8	63.0	1,679	117.162	42.7	54.1	65.9	Trailing 2-day moving avg of	91.6	94.0	(1.37)	52.36	2,850	0	4,103
Sun 3/1 9	70.1	1,682	116.788	42.9	55.5	65.8	Trailing 2-day moving avg of	91.3	94.0	(1.53)	49.86	3,793	0	5,462
Sun 3/1 10	73.9	1,684	116.550	42.8	58.1	65.6	Trailing 2-day moving avg of	91.1	94.0	(1.63)	48.38	3,974	0	5,722
Sun 3/1 11	76.4	1,684	116.414	43.0	60.9	65.5	Trailing 2-day moving avg of	91.0	94.0	(1.70)	47.49	3,919	0	5,643
Sun 3/1 12	78.5	1,685	116.292	43.6	64.3	65.5	Trailing 2-day moving avg of	90.9	94.0	(1.75)	46.80	3,854	0	5,549
Sun 3/1 13	81.6	1,686	116.163	44.5	67.8	65.4	Trailing 2-day moving avg of	90.8	94.0	(1.80)	46.16	3,979	0	5,730
Sun 3/1 14	83.8	1,686	116.049	45.4	70.8	65.4	Trailing 2-day moving avg of	90.7	94.0	(1.85)	45.61	4,020	0	5,789
Sun 3/1 15	84.9	1,687	115.949	46.2	73.0	65.3	Trailing 2-day moving avg of	90.6	94.0	(1.89)	45.09	4,030	0	5,803
Sun 3/1 16	85.1	1,687	115.867	47.0	74.4	65.2	Trailing 2-day moving avg of	90.5	94.0	(1.93)	44.60	4,051	0	5,833
Sun 3/1 17	85.0	1,688	115.789	47.8	75.0	65.2	Trailing 2-day moving avg of	90.5	94.0	(1.97)	44.17	4,043	0	5,822
Sun 3/1 18	83.4	1,688	115.678	48.2	74.8	65.1	Trailing 2-day moving avg of	90.4	94.0	(2.02)	43.64	4,114	0	5,924
Sun 3/1 19	82.6	1,688	115.587	48.5	73.7	65.0	Trailing 2-day moving avg of	90.3	94.0	(2.06)	43.20	4,198	0	6,045
Sun 3/1 20	79.1	1,689	115.520	48.4	71.7	65.0	Trailing 2-day moving avg of	90.3	94.0	(2.09)	42.85	4,151	0	5,977
Sun 3/1 21	76.5	1,689	115.445	47.9	69.4	64.9	Trailing 2-day moving avg of	90.2	94.0	(2.13)	42.52	4,172	0	6,008
Sun 3/1 22	74.9	1,689	115.372	47.4	67.7	64.9	Trailing 2-day moving avg of	90.1	94.0	(2.16)	42.23	4,190	0	6,034
Sun 3/1 23	74.2	1,689	115.302	46.9	66.0	64.9	Trailing 2-day moving avg of	90.1	94.0	(2.18)	41.96	4,206	0	6,056
Mon 3/2 0	71.9	1,689	115.234	46.3	64.5	64.9	Trailing 2-day moving avg of	90.0	94.0	(2.21)	41.69	4,235	0	6,098
Mon 3/2 1	70.2	1,690	115.170	45.5	63.1	64.8	Trailing 2-day moving avg of	90.0	94.0	(2.24)	41.41	4,276	0	6,158
Mon 3/2 2	69.8	1,690	115.121	44.9	61.7	64.8	Trailing 2-day moving avg of	89.9	94.0	(2.27)	41.14	4,230	0	6,091
Mon 3/2 3	72.1	1,690	115.077	44.6	60.9	64.7	Trailing 2-day moving avg of	89.9	94.0	(2.29)	40.86	4,214	0	6,068
Mon 3/2 4	70.8	1,690	115.027	44.3	60.7	64.7	Trailing 2-day moving avg of	89.8	94.0	(2.33)	40.57	4,275	0	6,156
Mon 3/2 5	71.0	1,690	114.975	44.0	60.2	64.6	Trailing 2-day moving avg of	89.8	94.0	(2.36)	40.27	4,263	0	6,139
Mon 3/2 6	72.1	1,690	114.963	43.9	59.9	64.5	Trailing 2-day moving avg of	89.7	94.0	(2.38)	40.08	4,254	0	6,126
Mon 3/2 7	71.9	1,691	114.940	43.7	59.5	64.5	Trailing 2-day moving avg of	89.7	94.0	(2.40)	39.85	4,255	0	6,127
Mon 3/2 8	72.4	1,691	114.907	43.6	59.1	64.4	Trailing 2-day moving avg of	89.7	94.0	(2.43)	39.62	4,232	0	6,095
Mon 3/2 9	75.6	1,691	114.933	43.8	59.7	64.4	Trailing 2-day moving avg of	89.7	94.0	(2.43)	39.61	4,188	0	6,031
Mon 3/2 10	80.3	1,691	114.953	44.6	61.8	64.4	Trailing 2-day moving avg of	89.7	94.0	(2.42)	39.72	4,121	0	5,935
Mon 3/2 11	83.4	1,691	114.935	45.6	65.1	64.5	Trailing 2-day moving avg of	89.7	94.0	(2.40)	39.88	4,133	0	5,952
Mon 3/2 12	87.0	1,692	114.905	47.0	68.2	64.6	Trailing 2-day moving avg of	89.8	94.0	(2.37)	40.13	4,179	0	6,017
Mon 3/2 13	88.1	1,692	114.915	48.4	71.4	64.8	Trailing 2-day moving avg of	89.8	94.0	(2.33)	40.56	4,145	0	5,968
Mon 3/2 14	89.0	1,691	115.349	49.7	73.9	64.9	Trailing 2-day moving avg of	90.1	94.0	(2.17)	42.09	3,698	0	5,325
Mon 3/2 15	87.4	1,686	115.870	50.9	75.8	65.0	Trailing 2-day moving avg of	90.4	94.0	(2.00)	43.88	2,561	0	3,687
Mon 3/2 16	81.2	1,685	115.871	51.4	74.7	65.0	Trailing 2-day moving avg of	90.5	94.0	(1.98)	44.04	2,809	0	4,045
Mon 3/2 17	79.1	1,691	115.610	50.8	71.8	65.0	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.27	4,077	0	5,872
Mon 3/2 18	77.5	1,691	115.432	50.3	70.1	65.0	Trailing 2-day moving avg of	90.2	94.0	(2.11)	42.64	4,105	0	5,911
Mon 3/2 19	73.3	1,692	115.299	49.3	67.7	64.9	Trailing 2-day moving avg of	90.1	94.0	(2.17)	42.03	4,133	0	5,951

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	<u>60.0</u>			<u>128.05</u>	Delta T, Tf -		FE-004	FE-009	
Descr Hour	I/W Manifold Temp °F	I/W Well Tubing Pressure PSIA	Bottom Hole Temp (Spartek) °F	I/W Well Annulus Pressure PSIA	I/W Well Annulus Temp °F	Est. WH Surface Temp Avg WHT, deg F	Method used to determine surface wellbore temperature	Avg Wellbore Temp, Tf deg F	Intial Avg Temp, Ti deg F	Delta T, Tf - Ti deg C	Predicted Annulus PSIA psia	Injection Gas Flow SCFM	Air Flow to Atmosphere SCFM	MCFD
Mon 3/2 20	72.6	1,692	115.184	48.3	66.2	64.8	Trailing 2-day moving avg of	90.0	94.0	(2.23)	41.45	4,162	0	5,994
Mon 3/2 21	71.2	1,692	115.103	47.6	65.0	64.7	Trailing 2-day moving avg of	89.9	94.0	(2.28)	41.01	4,200	0	6,048
Mon 3/2 22	70.0	1,692	115.040	46.8	63.6	64.7	Trailing 2-day moving avg of	89.9	94.0	(2.32)	40.67	4,161	0	5,992
Mon 3/2 23	71.0	1,692	114.983	46.3	62.7	64.6	Trailing 2-day moving avg of	89.8	94.0	(2.35)	40.37	4,162	0	5,994
Tue 3/3 0	68.2	1,693	114.928	45.7	61.5	64.6	Trailing 2-day moving avg of	89.7	94.0	(2.38)	40.09	4,204	0	6,054
Tue 3/3 1	66.3	1,693	114.847	44.8	60.2	64.5	Trailing 2-day moving avg of	89.7	94.0	(2.42)	39.72	4,260	0	6,135
Tue 3/3 2	65.7	1,693	114.797	44.0	59.0	64.5	Trailing 2-day moving avg of	89.6	94.0	(2.44)	39.47	4,304	0	6,198
Tue 3/3 3	64.0	1,693	114.784	43.3	58.0	64.4	Trailing 2-day moving avg of	89.6	94.0	(2.46)	39.35	4,209	0	6,061
Tue 3/3 4	62.0	1,693	114.748	42.5	56.5	64.4	Trailing 2-day moving avg of	89.6	94.0	(2.48)	39.16	4,215	0	6,070
Tue 3/3 5	62.4	1,693	114.734	41.9	55.7	64.4	Trailing 2-day moving avg of	89.5	94.0	(2.49)	39.05	4,199	0	6,046
Tue 3/3 6	63.1	1,693	114.859	41.4	55.3	64.3	Trailing 2-day moving avg of	89.6	94.0	(2.46)	39.31	4,123	0	5,937
Tue 3/3 7	60.5	1,691	115.019	41.1	54.4	64.3	Trailing 2-day moving avg of	89.7	94.0	(2.43)	39.64	3,894	0	5,607
Tue 3/3 8	58.7	1,685	116.350	41.3	53.2	64.3	Trailing 2-day moving avg of	90.3	94.0	(2.07)	43.12	1,557	0	2,242
Tue 3/3 9	55.5	1,679	117.533	44.2	53.0	64.2	Trailing 2-day moving avg of	90.9	94.0	(1.75)	46.81	0	0	-
Tue 3/3 10	61.6	1,677	118.391	46.5	53.5	64.2	Trailing 2-day moving avg of	91.3	94.0	(1.51)	50.10	4	0	6
Tue 3/3 11	74.9	1,675	119.058	48.4	54.9	64.2	Trailing 2-day moving avg of	91.6	94.0	(1.33)	53.12	0	0	-
Tue 3/3 12	80.7	1,674	119.601	50.2	56.9	64.2	Trailing 2-day moving avg of	91.9	94.0	(1.19)	55.90	0	0	-
Tue 3/3 13	84.4	1,674	120.059	51.9	59.2	64.1	Trailing 2-day moving avg of	92.1	94.0	(1.07)	58.47	0	0	-
Tue 3/3 14	86.0	1,673	120.453	53.4	61.4	64.1	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.72	0	0	-
Tue 3/3 15	90.1	1,672	120.794	54.7	63.3	64.0	Trailing 2-day moving avg of	92.4	94.0	(0.91)	62.53	1,417	0	2,040
Tue 3/3 16	84.2	1,672	121.090	55.9	64.4	63.9	Trailing 2-day moving avg of	92.5	94.0	(0.86)	63.82	2,514	0	3,620
Tue 3/3 17	79.6	1,673	120.759	57.0	64.9	63.7	Trailing 2-day moving avg of	92.2	94.0	(1.00)	60.20	2,161	0	3,111
Tue 3/3 18	80.2	1,679	120.164	56.3	66.3	63.5	Trailing 2-day moving avg of	91.9	94.0	(1.21)	55.50	2,619	0	3,771
Tue 3/3 19	76.0	1,683	119.331	54.5	66.5	63.4	Trailing 2-day moving avg of	91.3	94.0	(1.49)	50.52	3,452	0	4,971
Tue 3/3 20	73.7	1,686	118.642	52.0	65.6	63.2	Trailing 2-day moving avg of	90.9	94.0	(1.73)	47.07	3,990	0	5,745
Tue 3/3 21	72.7	1,687	118.107	50.3	64.5	63.0	Trailing 2-day moving avg of	90.6	94.0	(1.93)	44.65	4,006	0	5,768
Tue 3/3 22	72.4	1,688	117.693	49.0	63.5	62.8	Trailing 2-day moving avg of	90.3	94.0	(2.09)	42.91	4,005	0	5,767
Tue 3/3 23	71.6	1,689	117.348	48.0	62.7	62.7	Trailing 2-day moving avg of	90.0	94.0	(2.22)	41.56	4,008	0	5,772
Wed 3/4 0	70.6	1,689	117.045	47.1	61.8	62.6	Trailing 2-day moving avg of	89.8	94.0	(2.34)	40.44	4,040	0	5,818
Wed 3/4 1	67.8	1,690	116.770	46.1	60.7	62.5	Trailing 2-day moving avg of	89.6	94.0	(2.44)	39.46	4,137	0	5,957
Wed 3/4 2	64.7	1,690	116.581	44.9	59.2	62.4	Trailing 2-day moving avg of	89.5	94.0	(2.53)	38.72	4,126	0	5,941
Wed 3/4 3	63.8	1,689	116.503	44.0	58.1	62.3	Trailing 2-day moving avg of	89.4	94.0	(2.58)	38.27	3,719	0	5,355
Wed 3/4 4	62.0	1,691	116.237	43.1	56.7	62.2	Trailing 2-day moving avg of	89.2	94.0	(2.68)	37.38	4,245	0	6,113
Wed 3/4 5	61.9	1,691	116.045	42.1	55.6	62.1	Trailing 2-day moving avg of	89.1	94.0	(2.76)	36.65	4,247	0	6,115
Wed 3/4 6	63.9	1,692	115.888	41.6	55.0	61.9	Trailing 2-day moving avg of	88.9	94.0	(2.84)	35.99	4,197	0	6,044
Wed 3/4 7	62.3	1,692	115.752	41.0	54.6	61.8	Trailing 2-day moving avg of	88.8	94.0	(2.91)	35.40	4,180	0	6,020
Wed 3/4 8	62.7	1,692	115.632	40.5	54.1	61.7	Trailing 2-day moving avg of	88.7	94.0	(2.97)	34.84	4,189	0	6,032
Wed 3/4 9	67.9	1,692	115.564	40.7	55.5	61.6	Trailing 2-day moving avg of	88.6	94.0	(3.01)	34.50	4,142	0	5,964
Wed 3/4 10	72.9	1,692	115.509	41.1	58.0	61.6	Trailing 2-day moving avg of	88.6	94.0	(3.03)	34.31	4,077	0	5,871
Wed 3/4 11	77.8	1,693	115.447	41.8	61.3	61.7	Trailing 2-day moving avg of	88.6	94.0	(3.04)	34.25	4,057	0	5,842
Wed 3/4 12	80.9	1,693	115.395	42.8	65.0	61.7	Trailing 2-day moving avg of	88.6	94.0	(3.04)	34.27	4,032	0	5,806
Wed 3/4 13	84.4	1,694	115.348	44.2	68.5	61.8	Trailing 2-day moving avg of	88.6	94.0	(3.03)	34.32	4,005	0	5,767
Wed 3/4 14	87.1	1,694	115.283	45.5	71.6	61.9	Trailing 2-day moving avg of	88.6	94.0	(3.03)	34.33	4,042	0	5,820
Wed 3/4 15	87.5	1,695	115.226	46.7	73.9	61.9	Trailing 2-day moving avg of	88.6	94.0	(3.03)	34.31	4,059	0	5,845
Wed 3/4 16	87.2	1,695	115.167	47.7	75.2	61.9	Trailing 2-day moving avg of	88.5	94.0	(3.04)	34.23	4,068	0	5,858
Wed 3/4 17	85.7	1,696	115.068	48.6	76.0	61.9	Trailing 2-day moving avg of	88.5	94.0	(3.07)	34.01	4,100	0	5,904
Wed 3/4 18	83.1	1,696	114.948	48.9	75.5	61.9	Trailing 2-day moving avg of	88.4	94.0	(3.10)	33.76	4,217	0	6,072
Wed 3/4 19	80.5	1,697	114.857	48.8	74.0	62.0	Trailing 2-day moving avg of	88.4	94.0	(3.11)	33.65	4,283	0	6,167
Wed 3/4 20	77.5	1,697	114.792	48.5	71.8	62.0	Trailing 2-day moving avg of	88.4	94.0	(3.12)	33.58	4,191	0	6,035
Wed 3/4 21	75.5	1,697	114.724	48.1	69.7	62.1	Trailing 2-day moving avg of	88.4	94.0	(3.13)	33.51	4,237	0	6,102

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Wed 3/4 22	74.3	1,697	114.669	47.5	67.8	62.1	Trailing 2-day moving avg of	88.4	94.0	(3.13)	33.47	4,204	0
Wed 3/4 23	71.0	1,697	114.658	46.9	66.0	62.1	Trailing 2-day moving avg of	88.4	94.0	(3.13)	33.49	4,181	0
Thu 3/5 0	69.0	1,697	114.644	46.1	64.2	62.1	Trailing 2-day moving avg of	88.4	94.0	(3.13)	33.48	4,119	0
Thu 3/5 1	66.9	1,697	114.605	45.3	62.3	62.1	Trailing 2-day moving avg of	88.4	94.0	(3.15)	33.37	4,159	0
Thu 3/5 2	64.9	1,697	114.560	44.5	60.4	62.1	Trailing 2-day moving avg of	88.3	94.0	(3.16)	33.21	4,187	0
Thu 3/5 3	64.6	1,697	114.513	43.7	58.8	62.1	Trailing 2-day moving avg of	88.3	94.0	(3.19)	33.04	4,194	0
Thu 3/5 4	64.2	1,697	114.477	43.1	57.7	62.0	Trailing 2-day moving avg of	88.3	94.0	(3.20)	32.90	4,207	0
Thu 3/5 5	61.5	1,697	114.437	42.4	56.6	62.0	Trailing 2-day moving avg of	88.2	94.0	(3.22)	32.74	4,225	0
Thu 3/5 6	59.7	1,697	114.407	41.6	55.0	62.0	Trailing 2-day moving avg of	88.2	94.0	(3.24)	32.61	4,209	0
Thu 3/5 7	58.8	1,697	114.396	40.8	53.5	61.9	Trailing 2-day moving avg of	88.2	94.0	(3.25)	32.48	4,202	0
Thu 3/5 8	61.8	1,697	114.396	40.4	53.2	61.9	Trailing 2-day moving avg of	88.1	94.0	(3.26)	32.39	4,175	0
Thu 3/5 9	68.5	1,697	114.401	40.8	55.5	61.9	Trailing 2-day moving avg of	88.2	94.0	(3.26)	32.45	4,102	0
Thu 3/5 10	74.4	1,698	114.385	41.5	58.8	62.0	Trailing 2-day moving avg of	88.2	94.0	(3.23)	32.67	4,174	0
Thu 3/5 11	79.4	1,698	114.382	42.4	62.6	62.2	Trailing 2-day moving avg of	88.3	94.0	(3.18)	33.11	4,145	0
Thu 3/5 12	83.7	1,698	114.409	43.7	66.7	62.5	Trailing 2-day moving avg of	88.5	94.0	(3.10)	33.78	4,087	0
Thu 3/5 13	86.4	1,698	114.445	45.3	70.6	62.8	Trailing 2-day moving avg of	88.6	94.0	(3.00)	34.60	4,026	0
Thu 3/5 14	89.1	1,698	114.555	47.0	73.8	63.1	Trailing 2-day moving avg of	88.9	94.0	(2.87)	35.67	3,653	0
Thu 3/5 15	90.8	1,699	114.467	48.5	76.4	63.5	Trailing 2-day moving avg of	89.0	94.0	(2.80)	36.28	4,127	0
Thu 3/5 16	91.0	1,700	114.386	49.9	78.2	63.8	Trailing 2-day moving avg of	89.1	94.0	(2.73)	36.89	4,174	0
Thu 3/5 17	89.2	1,700	114.307	50.9	78.8	64.1	Trailing 2-day moving avg of	89.2	94.0	(2.67)	37.45	4,212	0
Thu 3/5 18	86.4	1,701	114.209	51.5	78.0	64.4	Trailing 2-day moving avg of	89.3	94.0	(2.62)	37.88	4,291	0
Thu 3/5 19	82.9	1,701	114.127	51.5	76.0	64.6	Trailing 2-day moving avg of	89.4	94.0	(2.58)	38.23	4,331	0
Thu 3/5 20	79.2	1,701	114.131	51.1	73.6	64.8	Trailing 2-day moving avg of	89.5	94.0	(2.54)	38.60	4,253	0
Thu 3/5 21	77.3	1,701	114.108	50.6	71.3	64.9	Trailing 2-day moving avg of	89.5	94.0	(2.52)	38.79	4,174	0
Thu 3/5 22	74.4	1,701	114.087	50.0	68.8	64.9	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.89	4,192	0
Thu 3/5 23	72.4	1,701	114.073	49.2	66.1	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.50)	38.94	4,205	0
Fri 3/6 0	70.9	1,701	114.066	48.4	64.4	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.50)	38.97	4,200	0
Fri 3/6 1	68.7	1,701	114.071	47.5	63.1	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.49)	39.01	4,178	0
Fri 3/6 2	68.7	1,701	114.031	46.9	61.9	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.91	4,195	0
Fri 3/6 3	69.4	1,701	114.014	46.4	61.0	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.88	4,211	0
Fri 3/6 4	67.4	1,701	113.993	45.8	60.0	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.87	4,238	0
Fri 3/6 5	65.0	1,701	113.984	45.1	58.3	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.86	4,254	0
Fri 3/6 6	62.6	1,701	113.980	44.2	57.0	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.87	4,224	0
Fri 3/6 7	62.1	1,701	113.984	43.4	55.8	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.51)	38.89	4,210	0
Fri 3/6 8	63.8	1,701	113.994	43.0	55.2	65.0	Trailing 2-day moving avg of	89.5	94.0	(2.50)	38.93	4,192	0
Fri 3/6 9	68.4	1,701	114.070	43.2	56.7	65.1	Trailing 2-day moving avg of	89.6	94.0	(2.47)	39.23	3,993	0
Fri 3/6 10	73.3	1,701	114.069	43.7	59.4	65.2	Trailing 2-day moving avg of	89.6	94.0	(2.44)	39.49	4,088	0
Fri 3/6 11	80.3	1,702	114.185	44.6	63.2	65.3	Trailing 2-day moving avg of	89.8	94.0	(2.37)	40.18	4,158	0
Fri 3/6 12	85.6	1,700	114.278	46.2	67.6	65.5	Trailing 2-day moving avg of	89.9	94.0	(2.29)	40.93	3,518	0
Fri 3/6 13	89.6	1,702	114.242	48.1	71.9	65.7	Trailing 2-day moving avg of	90.0	94.0	(2.24)	41.40	4,039	0
Fri 3/6 14	93.1	1,703	114.237	50.1	75.8	66.0	Trailing 2-day moving avg of	90.1	94.0	(2.18)	41.98	4,012	0
Fri 3/6 15	94.5	1,703	114.222	51.9	78.8	66.2	Trailing 2-day moving avg of	90.2	94.0	(2.13)	42.51	4,036	0
Fri 3/6 16	94.3	1,704	114.164	53.6	80.4	66.3	Trailing 2-day moving avg of	90.3	94.0	(2.09)	42.85	4,079	0
Fri 3/6 17	93.4	1,704	114.123	55.0	81.2	66.5	Trailing 2-day moving avg of	90.3	94.0	(2.06)	43.16	4,132	0
Fri 3/6 18	91.0	1,704	114.054	56.0	81.4	66.6	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.32	4,174	0
Fri 3/6 19	86.2	1,705	113.996	56.1	79.5	66.7	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.36	4,268	0
Fri 3/6 20	84.8	1,705	113.953	56.0	77.3	66.7	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.34	4,235	0
Fri 3/6 21	81.3	1,705	113.922	55.6	75.3	66.7	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.32	4,229	0
Fri 3/6 22	79.4	1,705	113.907	55.0	73.0	66.8	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.35	4,231	0
Fri 3/6 23	75.7	1,705	113.907	54.0	70.7	66.8	Trailing 2-day moving avg of	90.4	94.0	(2.04)	43.41	4,194	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Sat 3/7 0	73.4	1,705	113.895	53.0	68.4	66.8	Trailing 2-day moving avg of	90.4	94.0	(2.04)	43.41	4,173	0
Sat 3/7 1	71.6	1,705	113.858	52.0	66.3	66.8	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.31	4,222	0
Sat 3/7 2	70.7	1,705	113.856	51.0	64.6	66.8	Trailing 2-day moving avg of	90.3	94.0	(2.05)	43.34	4,198	0
Sat 3/7 3	70.4	1,705	113.851	50.2	63.5	66.8	Trailing 2-day moving avg of	90.3	94.0	(2.04)	43.39	4,212	0
Sat 3/7 4	71.5	1,705	113.844	49.7	62.5	66.9	Trailing 2-day moving avg of	90.4	94.0	(2.03)	43.50	4,205	0
Sat 3/7 5	68.0	1,705	113.852	49.0	61.8	66.9	Trailing 2-day moving avg of	90.4	94.0	(2.01)	43.70	4,206	0
Sat 3/7 6	65.4	1,705	113.869	48.0	60.3	67.0	Trailing 2-day moving avg of	90.4	94.0	(2.00)	43.90	4,148	0
Sat 3/7 7	63.8	1,705	113.900	47.0	58.8	67.0	Trailing 2-day moving avg of	90.5	94.0	(1.97)	44.13	4,157	0
Sat 3/7 8	66.8	1,705	113.906	46.5	58.5	67.1	Trailing 2-day moving avg of	90.5	94.0	(1.95)	44.37	4,187	0
Sat 3/7 9	74.3	1,705	113.929	47.0	60.7	67.3	Trailing 2-day moving avg of	90.6	94.0	(1.91)	44.90	4,114	0
Sat 3/7 10	81.0	1,705	113.979	48.1	64.2	67.5	Trailing 2-day moving avg of	90.7	94.0	(1.83)	45.78	4,062	0
Sat 3/7 11	85.6	1,705	114.000	49.4	68.2	67.7	Trailing 2-day moving avg of	90.9	94.0	(1.76)	46.72	4,050	0
Sat 3/7 12	89.5	1,706	113.966	51.2	72.3	68.0	Trailing 2-day moving avg of	91.0	94.0	(1.69)	47.57	4,142	0
Sat 3/7 13	91.7	1,707	113.937	53.2	75.8	68.3	Trailing 2-day moving avg of	91.1	94.0	(1.62)	48.47	4,192	0
Sat 3/7 14	93.8	1,707	113.940	55.3	78.9	68.5	Trailing 2-day moving avg of	91.2	94.0	(1.56)	49.46	4,155	0
Sat 3/7 15	94.6	1,707	113.933	57.1	81.4	68.7	Trailing 2-day moving avg of	91.3	94.0	(1.50)	50.35	4,130	0
Sat 3/7 16	94.3	1,708	113.925	58.6	82.8	68.9	Trailing 2-day moving avg of	91.4	94.0	(1.45)	51.11	4,198	0
Sat 3/7 17	93.3	1,708	113.919	60.0	83.4	69.0	Trailing 2-day moving avg of	91.5	94.0	(1.41)	51.73	4,163	0
Sat 3/7 18	91.1	1,708	113.890	60.7	82.9	69.1	Trailing 2-day moving avg of	91.5	94.0	(1.39)	52.03	4,182	0
Sat 3/7 19	86.3	1,708	113.855	60.7	80.4	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.39)	52.02	4,262	0
Sat 3/7 20	82.0	1,708	113.858	59.9	77.9	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.39)	52.01	4,155	0
Sat 3/7 21	80.8	1,708	113.849	59.2	75.4	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.40)	51.91	4,187	0
Sat 3/7 22	79.1	1,709	113.847	58.4	73.6	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.40)	51.90	4,206	0
Sat 3/7 23	76.5	1,708	113.851	57.4	71.7	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.40)	51.95	4,153	0
Sun 3/8 0	74.7	1,708	113.848	56.4	69.8	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.39)	52.04	4,178	0
Sun 3/8 1	73.8	1,709	113.843	55.4	68.0	69.2	Trailing 2-day moving avg of	91.5	94.0	(1.38)	52.20	4,186	0
Sun 3/8 2			113.838	54.5	66.6	69.3	Trailing 2-day moving avg of	91.6	94.0	(1.37)	52.39		0
Sun 3/8 3	72.3	1,709	113.871	53.8	65.8	69.3	Trailing 2-day moving avg of	91.6	94.0	(1.35)	52.81	4,199	0
Sun 3/8 4	70.7	1,708	113.897	53.4	65.2	69.4	Trailing 2-day moving avg of	91.6	94.0	(1.32)	53.27	4,154	0
Sun 3/8 5	69.4	1,708	113.903	52.5	63.9	69.4	Trailing 2-day moving avg of	91.7	94.0	(1.31)	53.59	4,105	0
Sun 3/8 6	66.5	1,708	113.887	51.4	62.2	69.5	Trailing 2-day moving avg of	91.7	94.0	(1.30)	53.73	4,158	0
Sun 3/8 7	66.0	1,708	113.861	50.3	60.7	69.5	Trailing 2-day moving avg of	91.7	94.0	(1.29)	53.84	4,161	0
Sun 3/8 8	62.5	1,708	113.897	49.1	58.6	69.6	Trailing 2-day moving avg of	91.7	94.0	(1.27)	54.20	4,213	0
Sun 3/8 9	65.7	1,708	113.962	48.3	57.8	69.6	Trailing 2-day moving avg of	91.8	94.0	(1.24)	54.77	4,190	0
Sun 3/8 10	71.5	1,708	114.014	48.5	59.5	69.7	Trailing 2-day moving avg of	91.9	94.0	(1.21)	55.53	4,071	0
Sun 3/8 11	79.0	1,708	114.020	49.4	62.9	69.8	Trailing 2-day moving avg of	91.9	94.0	(1.17)	56.26	3,961	0
Sun 3/8 12	84.7	1,709	114.043	50.8	67.1	70.0	Trailing 2-day moving avg of	92.0	94.0	(1.12)	57.31	4,036	0
Sun 3/8 13	89.3	1,709	114.073	52.5	71.4	70.1	Trailing 2-day moving avg of	92.1	94.0	(1.07)	58.52	4,064	0
Sun 3/8 14	94.1	1,709	114.074	54.9	75.6	70.3	Trailing 2-day moving avg of	92.2	94.0	(1.02)	59.58	4,008	0
Sun 3/8 15	96.6	1,710	114.063	57.3	79.3	70.4	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.51	3,986	0
Sun 3/8 16	97.7	1,711	114.020	59.6	82.1	70.6	Trailing 2-day moving avg of	92.3	94.0	(0.96)	61.08	4,111	0
Sun 3/8 17	98.0	1,711	114.004	61.7	83.8	70.7	Trailing 2-day moving avg of	92.3	94.0	(0.94)	61.68	4,130	0
Sun 3/8 18	96.9	1,711	113.959	63.5	84.7	70.8	Trailing 2-day moving avg of	92.4	94.0	(0.93)	61.97	4,138	0
Sun 3/8 19	92.6	1,711	113.936	64.4	83.7	70.8	Trailing 2-day moving avg of	92.4	94.0	(0.92)	62.16	4,205	0
Sun 3/8 20	87.4	1,712	113.916	64.2	81.2	70.8	Trailing 2-day moving avg of	92.4	94.0	(0.93)	61.99	4,154	0
Sun 3/8 21	84.5	1,712	113.895	63.4	78.6	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.94)	61.70	4,185	0
Sun 3/8 22	81.4	1,712	113.870	62.5	76.3	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.36	4,218	0
Sun 3/8 23	80.1	1,712	113.862	61.4	73.9	70.7	Trailing 2-day moving avg of	92.3	94.0	(0.96)	61.10	4,191	0
Mon 3/9 0	78.7	1,712	113.866	60.6	72.5	70.7	Trailing 2-day moving avg of	92.3	94.0	(0.96)	61.06	4,167	0
Mon 3/9 1	75.7	1,712	113.900	59.4	70.8	70.7	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.31	4,175	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Mon 3/9 2	73.3	1,712	113.875	58.1	68.9	70.7	Trailing 2-day moving avg of	92.3	94.0	(0.96)	61.21	4,120	0
Mon 3/9 3	72.4	1,712	113.851	56.9	67.2	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.96)	61.17	4,156	0
Mon 3/9 4	71.7	1,712	113.844	55.8	65.6	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.25	4,200	0
Mon 3/9 5	72.2	1,712	113.837	55.0	64.4	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.33	4,209	0
Mon 3/9 6	69.5	1,712	113.840	53.9	62.9	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.40	4,221	0
Mon 3/9 7	67.8	1,712	113.837	52.8	62.1	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.42	4,216	0
Mon 3/9 8	67.1	1,712	113.843	51.8	60.9	70.8	Trailing 2-day moving avg of	92.3	94.0	(0.94)	61.55	4,198	0
Mon 3/9 9	70.9	1,712	113.899	51.4	60.3	70.8	Trailing 2-day moving avg of	92.4	94.0	(0.92)	62.18	4,228	0
Mon 3/9 10	76.8	1,712	113.961	51.9	62.3	70.9	Trailing 2-day moving avg of	92.4	94.0	(0.88)	63.21	4,127	0
Mon 3/9 11	81.4	1,712	114.011	52.8	65.4	71.0	Trailing 2-day moving avg of	92.5	94.0	(0.84)	64.33	4,033	0
Mon 3/9 12	86.1	1,712	114.066	54.2	68.8	71.1	Trailing 2-day moving avg of	92.6	94.0	(0.80)	65.52	4,050	0
Mon 3/9 13	89.8	1,712	114.085	55.9	72.7	71.2	Trailing 2-day moving avg of	92.6	94.0	(0.77)	66.44	3,987	0
Mon 3/9 14	94.0	1,713	114.086	58.3	76.7	71.3	Trailing 2-day moving avg of	92.7	94.0	(0.75)	67.21	3,971	0
Mon 3/9 15	96.7	1,713	114.077	60.8	80.3	71.4	Trailing 2-day moving avg of	92.7	94.0	(0.72)	67.91	3,995	0
Mon 3/9 16	97.3	1,714	114.073	63.0	82.8	71.4	Trailing 2-day moving avg of	92.8	94.0	(0.70)	68.58	4,068	0
Mon 3/9 17	96.8	1,714	114.042	65.0	84.3	71.5	Trailing 2-day moving avg of	92.8	94.0	(0.70)	68.81	4,055	0
Mon 3/9 18	95.7	1,714	114.020	66.5	85.0	71.5	Trailing 2-day moving avg of	92.8	94.0	(0.69)	69.01	4,126	0
Mon 3/9 19	93.2	1,715	114.026	67.4	84.8	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.68)	69.31	4,186	0
Mon 3/9 20	90.4	1,715	114.001	67.7	83.3	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.68)	69.15	4,076	0
Mon 3/9 21	85.4	1,715	113.940	67.0	80.8	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.70)	68.65	4,116	0
Mon 3/9 22	82.2	1,715	113.913	66.0	78.0	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.71)	68.43	4,238	0
Mon 3/9 23	79.0	1,715	113.902	64.3	75.2	71.6	Trailing 2-day moving avg of	92.7	94.0	(0.71)	68.30	4,242	0
Tue 3/10 0	78.2	1,715	113.870	63.1	73.2	71.6	Trailing 2-day moving avg of	92.7	94.0	(0.72)	67.95	4,229	0
Tue 3/10 1	76.1	1,715	113.853	61.8	71.4	71.6	Trailing 2-day moving avg of	92.7	94.0	(0.73)	67.75	4,230	0
Tue 3/10 2	74.8	1,715	114.007	60.5	69.7	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.69)	69.13	4,246	0
Tue 3/10 3	74.1	1,714	114.106	59.4	68.2	71.6	Trailing 2-day moving avg of	92.8	94.0	(0.66)	70.09	3,979	0
Tue 3/10 4	72.6	1,714	114.178	58.5	66.8	71.6	Trailing 2-day moving avg of	92.9	94.0	(0.64)	70.82	3,931	0
Tue 3/10 5	71.9	1,714	114.277	57.7	65.6	71.6	Trailing 2-day moving avg of	92.9	94.0	(0.61)	71.76	3,836	0
Tue 3/10 6	70.2	1,714	114.281	56.8	64.6	71.6	Trailing 2-day moving avg of	92.9	94.0	(0.61)	71.67	3,850	0
Tue 3/10 7	69.0	1,713	114.645	55.8	63.3	71.6	Trailing 2-day moving avg of	93.1	94.0	(0.51)	75.34	3,779	0
Tue 3/10 8	66.2	1,713	114.856	54.6	62.0	71.6	Trailing 2-day moving avg of	93.2	94.0	(0.46)	77.64	3,453	0
Tue 3/10 9	68.5	1,709	114.649	54.8	61.4	71.6	Trailing 2-day moving avg of	93.1	94.0	(0.51)	75.50	2,754	0
Tue 3/10 10	76.6	1,714	114.564	55.3	63.4	71.7	Trailing 2-day moving avg of	93.1	94.0	(0.51)	75.60	3,994	0
Tue 3/10 11	82.7	1,715	114.513	55.9	66.8	71.8	Trailing 2-day moving avg of	93.2	94.0	(0.47)	77.02	4,139	0
Tue 3/10 12	87.5	1,714	114.469	57.4	70.6	72.1	Trailing 2-day moving avg of	93.3	94.0	(0.42)	79.08	3,850	0
Tue 3/10 13	92.1	1,715	114.421	59.2	74.7	72.3	Trailing 2-day moving avg of	93.4	94.0	(0.37)	81.35	4,000	0
Tue 3/10 14	95.3	1,716	114.420	61.6	78.4	72.5	Trailing 2-day moving avg of	93.5	94.0	(0.31)	84.24	4,006	0
Tue 3/10 15	99.3	1,716	114.314	64.2	81.7	72.7	Trailing 2-day moving avg of	93.5	94.0	(0.28)	85.56	3,961	0
Tue 3/10 16	96.9	1,717	114.316	66.4	83.8	72.9	Trailing 2-day moving avg of	93.6	94.0	(0.23)	87.85	4,212	0
Tue 3/10 17	94.5	1,717	114.250	67.6	83.4	73.0	Trailing 2-day moving avg of	93.6	94.0	(0.23)	88.07	4,071	0
Tue 3/10 18	93.4	1,717	113.790	68.7	82.8	73.0	Trailing 2-day moving avg of	93.4	94.0	(0.35)	82.13	4,059	0
Tue 3/10 19	90.4	1,720	113.669	69.0	81.5	72.9	Trailing 2-day moving avg of	93.3	94.0	(0.40)	80.08	4,746	0
Tue 3/10 20	87.0	1,723	113.862	68.6	79.7	72.8	Trailing 2-day moving avg of	93.4	94.0	(0.37)	81.22	5,333	0
Tue 3/10 21	83.4	1,718	114.356	67.6	77.8	72.7	Trailing 2-day moving avg of	93.5	94.0	(0.27)	86.12	4,096	0
Tue 3/10 22	80.2	1,716	114.728	66.5	75.8	72.6	Trailing 2-day moving avg of	93.7	94.0	(0.19)	89.83	3,470	0
Tue 3/10 23	80.0	1,713	114.433	66.2	73.7	72.5	Trailing 2-day moving avg of	93.5	94.0	(0.30)	84.40	2,741	0
Wed 3/11 0	79.7	1,715	114.050	65.7	72.0	72.4	Trailing 2-day moving avg of	93.2	94.0	(0.43)	78.59	3,508	0
Wed 3/11 1	78.6	1,721	114.144	64.2	70.8	72.4	Trailing 2-day moving avg of	93.3	94.0	(0.42)	78.98	5,135	0
Wed 3/11 2	79.5	1,718	114.181	63.1	70.2	72.3	Trailing 2-day moving avg of	93.3	94.0	(0.43)	78.87	4,106	0
Wed 3/11 3	79.6	1,717	113.838	62.8	69.6	72.3	Trailing 2-day moving avg of	93.1	94.0	(0.53)	74.76	3,978	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Wed 3/11 4	78.8	1,720	113.895	62.4	69.4	72.3	Trailing 2-day moving avg of	93.1	94.0	(0.51)	75.47	4,517	0
Wed 3/11 5	77.5	1,721	114.039	61.1	68.5	72.3	Trailing 2-day moving avg of	93.2	94.0	(0.46)	77.37	4,729	0
Wed 3/11 6	77.8	1,718	114.150	60.8	68.0	72.4	Trailing 2-day moving avg of	93.3	94.0	(0.42)	79.24	3,973	0
Wed 3/11 7	75.3	1,718	114.408	60.3	67.7	72.5	Trailing 2-day moving avg of	93.4	94.0	(0.33)	83.25	3,961	0
Wed 3/11 8	74.3	1,716	114.276	59.6	66.8	72.5	Trailing 2-day moving avg of	93.4	94.0	(0.34)	82.57	3,354	0
Wed 3/11 9	72.9	1,718	114.182	59.1	65.9	72.6	Trailing 2-day moving avg of	93.4	94.0	(0.35)	82.36	4,044	0
Wed 3/11 10	75.9	1,718	113.737	58.3	65.8	72.7	Trailing 2-day moving avg of	93.2	94.0	(0.44)	78.16	4,155	0
Wed 3/11 11	83.4	1,722	113.727	58.9	66.6	72.8	Trailing 2-day moving avg of	93.3	94.0	(0.41)	79.52	4,841	0
Wed 3/11 12	87.2	1,723	113.837	60.1	68.6	73.0	Trailing 2-day moving avg of	93.4	94.0	(0.35)	82.43	4,999	0
Wed 3/11 13	84.4	1,720	113.691	60.8	70.2	73.1	Trailing 2-day moving avg of	93.4	94.0	(0.36)	81.81	4,218	0
Wed 3/11 14	84.1	1,720	113.390	61.3	71.5	73.1	Trailing 2-day moving avg of	93.3	94.0	(0.43)	78.80	4,237	0
Wed 3/11 15	85.3	1,726	113.559	61.8	72.9	73.1	Trailing 2-day moving avg of	93.3	94.0	(0.38)	80.87	5,516	0
Wed 3/11 16	87.8	1,723	113.666	62.8	74.7	73.1	Trailing 2-day moving avg of	93.4	94.0	(0.36)	81.71	4,587	0
Wed 3/11 17	86.5	1,721	113.689	63.6	75.6	73.0	Trailing 2-day moving avg of	93.3	94.0	(0.38)	80.82	4,268	0
Wed 3/11 18	87.2	1,722	113.686	64.4	75.3	72.8	Trailing 2-day moving avg of	93.3	94.0	(0.42)	78.97	4,336	0
Wed 3/11 19	86.3	1,722	113.677	64.8	74.8	72.6	Trailing 2-day moving avg of	93.2	94.0	(0.48)	76.69	4,392	0
Wed 3/11 20	83.9	1,722	113.674	64.8	74.0	72.4	Trailing 2-day moving avg of	93.1	94.0	(0.54)	74.26	4,433	0
Wed 3/11 21	79.5	1,722	113.728	64.0	72.6	72.2	Trailing 2-day moving avg of	93.0	94.0	(0.59)	72.31	4,460	0
Wed 3/11 22	76.7	1,722	113.752	62.7	70.8	71.9	Trailing 2-day moving avg of	92.8	94.0	(0.66)	70.11	4,343	0
Wed 3/11 23	76.9	1,722	113.755	61.8	69.1	71.7	Trailing 2-day moving avg of	92.7	94.0	(0.72)	67.99	4,220	0
Thu 3/12 0	73.8	1,722	113.727	60.6	68.1	71.5	Trailing 2-day moving avg of	92.6	94.0	(0.78)	66.04	4,300	0
Thu 3/12 1	73.1	1,722	113.678	59.4	66.6	71.3	Trailing 2-day moving avg of	92.5	94.0	(0.84)	64.24	4,372	0
Thu 3/12 2	72.6	1,722	113.648	58.3	65.5	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.81	4,459	0
Thu 3/12 3	71.7	1,722	113.621	57.2	64.5	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.94)	61.59	4,463	0
Thu 3/12 4	71.3	1,722	113.619	56.3	63.5	70.9	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.68	4,460	0
Thu 3/12 5	71.6	1,722	113.615	55.6	62.5	70.8	Trailing 2-day moving avg of	92.2	94.0	(1.01)	59.87	4,441	0
Thu 3/12 6	70.4	1,722	113.596	54.8	62.0	70.7	Trailing 2-day moving avg of	92.2	94.0	(1.04)	59.11	4,430	0
Thu 3/12 7	69.3	1,722	113.586	53.9	60.9	70.6	Trailing 2-day moving avg of	92.1	94.0	(1.07)	58.43	4,475	0
Thu 3/12 8	70.5	1,723	113.598	53.2	60.4	70.5	Trailing 2-day moving avg of	92.1	94.0	(1.09)	57.98	4,498	0
Thu 3/12 9	73.5	1,723	113.647	53.1	60.9	70.5	Trailing 2-day moving avg of	92.1	94.0	(1.09)	57.98	4,447	0
Thu 3/12 10	79.0	1,723	113.685	53.8	63.3	70.5	Trailing 2-day moving avg of	92.1	94.0	(1.07)	58.39	4,331	0
Thu 3/12 11	83.7	1,723	113.676	55.0	66.5	70.6	Trailing 2-day moving avg of	92.1	94.0	(1.05)	58.99	4,266	0
Thu 3/12 12	87.5	1,723	113.681	56.6	69.8	70.7	Trailing 2-day moving avg of	92.2	94.0	(1.01)	59.88	4,334	0
Thu 3/12 13	91.3	1,724	113.689	58.6	73.3	70.9	Trailing 2-day moving avg of	92.3	94.0	(0.97)	60.84	4,340	0
Thu 3/12 14	93.9	1,724	113.696	60.9	76.7	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.93)	61.76	4,288	0
Thu 3/12 15	96.1	1,724	113.696	63.3	79.5	71.1	Trailing 2-day moving avg of	92.4	94.0	(0.91)	62.47	4,289	0
Thu 3/12 16	97.2	1,725	113.690	65.8	81.8	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.89)	62.94	4,314	0
Thu 3/12 17	96.7	1,725	113.678	67.9	83.2	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.89)	63.07	4,312	0
Thu 3/12 18	95.5	1,725	113.637	69.5	83.8	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.77	4,322	0
Thu 3/12 19	94.1	1,725	113.614	70.8	83.6	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.63	4,357	0
Thu 3/12 20	89.9	1,726	113.600	71.1	82.0	71.2	Trailing 2-day moving avg of	92.4	94.0	(0.91)	62.41	4,380	0
Thu 3/12 21	85.9	1,726	113.480	70.4	79.9	71.1	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.30	4,357	0
Thu 3/12 22	84.5	1,726	113.071	69.5	77.9	71.1	Trailing 2-day moving avg of	92.1	94.0	(1.08)	58.31	4,394	0
Thu 3/12 23	82.5	1,729	112.803	68.5	76.1	71.1	Trailing 2-day moving avg of	91.9	94.0	(1.16)	56.46	5,237	0
Fri 3/13 0	82.6	1,731	112.893	67.3	74.6	71.0	Trailing 2-day moving avg of	92.0	94.0	(1.14)	56.84	5,538	0
Fri 3/13 1	82.4	1,731	113.671	66.8	73.8	71.0	Trailing 2-day moving avg of	92.4	94.0	(0.93)	62.00	5,376	0
Fri 3/13 2	78.0	1,725	113.991	65.8	72.2	71.0	Trailing 2-day moving avg of	92.5	94.0	(0.84)	64.47	3,788	0
Fri 3/13 3	74.0	1,718	113.519	65.7	69.9	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.97)	60.81	1,862	0
Fri 3/13 4	76.1	1,729	113.633	64.5	68.4	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.95)	61.36	5,269	0
Fri 3/13 5	77.3	1,727	113.724	63.1	68.1	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.93)	61.79	4,497	0

HOURLY FIELD DATA

Tag	TIT-002	PIT-012	TT-015 I/W Well	PIT-018	TIT-018	60.0		128.05	Delta T, Tf -		FE-004	FE-009	
	I/W Manifold	I/W Well	Bottom Hole	I/W Well	I/W Well	Method used to							
Descr	Temp	Tubing	Temp	Annulus	Annulus	Est. WH	determine surface	Avg Wellbore	Intial Avg	Delta T, Tf -	Predicted	Injection Gas	Air Flow to
Hour	°F	Pressure	(Spartek)	Pressure	Temp	Surface Temp	wellbore temperature	Temp, Tf	Temp, Ti	Ti	Annulus PSIA	Flow	Atmosphere
		PSIA	°F	PSIA	°F	Avg WHT, deg F		deg F	deg F	deg C	psia	SCFM	SCFM
Fri 3/13 6	75.7	1,725	113.755	62.4	67.4	70.9	Trailing 2-day moving avg of	92.3	94.0	(0.94)	61.73	4,105	0
Fri 3/13 7	75.4	1,725	113.799	61.6	66.8	70.9	Trailing 2-day moving avg of	92.3	94.0	(0.93)	61.81	4,137	0
Fri 3/13 8	75.0	1,725	113.846	61.0	66.6	70.9	Trailing 2-day moving avg of	92.4	94.0	(0.93)	61.94	4,168	0
Fri 3/13 9	75.4	1,725	113.967	60.3	66.5	70.8	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.65	4,122	0
Fri 3/13 10	81.7	1,725	113.638	60.9	68.1	70.9	Trailing 2-day moving avg of	92.3	94.0	(0.99)	60.46	4,031	0
Fri 3/13 11	85.7	1,726	113.565	62.2	71.0	71.0	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.66	4,211	0
Fri 3/13 12	90.5	1,730	113.386	63.6	74.2	71.1	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.58	5,158	0
Fri 3/13 13	95.7	1,728	113.165	66.4	78.3	71.4	Trailing 2-day moving avg of	92.3	94.0	(0.98)	60.67	4,554	0
Fri 3/13 14	99.6	1,732	113.046	70.1	82.2	71.6	Trailing 2-day moving avg of	92.3	94.0	(0.93)	61.76	5,247	0
Fri 3/13 15	103.2	1,732	112.872	74.6	85.6	71.9	Trailing 2-day moving avg of	92.4	94.0	(0.90)	62.75	5,113	0
Fri 3/13 16	103.0	1,734	112.771	79.0	88.2	72.3	Trailing 2-day moving avg of	92.5	94.0	(0.83)	64.57	5,352	0
Fri 3/13 17	102.0	1,734	112.677	82.7	89.7	72.6	Trailing 2-day moving avg of	92.6	94.0	(0.77)	66.58	5,390	0
Fri 3/13 18	99.5	1,735	112.620	85.6	90.1	72.9	Trailing 2-day moving avg of	92.8	94.0	(0.70)	68.78	5,413	0
Fri 3/13 19	96.3	1,734	112.501	86.9	88.5	72.5	Use constant T due to highe	92.5	94.0	(0.85)	64.17	5,198	0
Fri 3/13 20	93.5	1,736	112.478	87.0	86.1	72.5	Use constant T due to highe	92.5	94.0	(0.85)	63.98	5,548	0
Fri 3/13 21	88.4	1,736	112.524	85.6	84.0	72.5	Use constant T due to highe	92.5	94.0	(0.84)	64.34	5,520	0
Fri 3/13 22	87.2	1,735	112.829	83.8	81.8	72.5	Use constant T due to highe	92.7	94.0	(0.76)	66.88	5,386	0
Fri 3/13 23	86.2	1,733	112.795	82.3	80.2	72.5	Use constant T due to highe	92.6	94.0	(0.77)	66.58	4,642	0
Sat 3/14 0	86.6	1,732	112.692	81.6	78.8	72.5	Use constant T due to highe	92.6	94.0	(0.79)	65.71	4,667	0
Sat 3/14 1	85.6	1,736	112.643	80.6	78.2	72.5	Use constant T due to highe	92.6	94.0	(0.81)	65.31	5,453	0
Sat 3/14 2	83.1	1,736	112.618	79.0	76.9	72.5	Use constant T due to highe	92.6	94.0	(0.81)	65.10	5,365	0
Sat 3/14 3	81.3	1,736	112.611	77.0	75.6	72.5	Use constant T due to highe	92.6	94.0	(0.82)	65.05	5,332	0
Sat 3/14 4	81.7	1,736	112.596	75.5	74.7	72.5	Use constant T due to highe	92.5	94.0	(0.82)	64.93	5,480	0
Sat 3/14 5	78.5	1,736	112.570	73.5	73.3	72.5	Use constant T due to highe	92.5	94.0	(0.83)	64.71	5,399	0
Sat 3/14 6	79.2	1,736	112.545	71.7	72.3	72.5	Use constant T due to highe	92.5	94.0	(0.83)	64.52	5,445	0
Sat 3/14 7	78.4	1,737	112.545	70.4	71.3	72.5	Use constant T due to highe	92.5	94.0	(0.83)	64.51	5,590	0
Sat 3/14 8	76.8	1,737	112.586	68.6	70.0	72.5	Use constant T due to highe	92.5	94.0	(0.82)	64.85	5,573	0
Sat 3/14 9	80.8	1,737	112.635	67.8	70.6	72.5	Use constant T due to highe	92.6	94.0	(0.81)	65.24	5,465	0
Sat 3/14 10	85.9	1,737	112.665	69.1	73.2	72.5	Use constant T due to highe	92.6	94.0	(0.80)	65.49	5,334	0
Sat 3/14 11	89.2	1,737	112.701	70.7	75.6	72.5	Use constant T due to highe	92.6	94.0	(0.79)	65.79	5,358	0
Sat 3/14 12	90.9	1,737	112.658	72.6	77.6	72.5	Use constant T due to highe	92.6	94.0	(0.80)	65.44	5,300	0
Sat 3/14 13	100.5	1,738	112.927	76.7	80.8	72.5	Use constant T due to highe	92.7	94.0	(0.73)	67.73	5,343	0
Sat 3/14 14	106.3	1,739	113.760	83.4	85.6	72.5	Use constant T due to highe	93.1	94.0	(0.50)	75.98	5,419	0
Sat 3/14 15	112.7	1,731	114.382	89.2	90.0	72.5	Use constant T due to highe	93.4	94.0	(0.32)	83.41	2,930	0
Sat 3/14 16	115.3	1,728	114.822	92.4	93.4	72.5	Use constant T due to highe	93.7	94.0	(0.20)	89.42	2,358	0
Sat 3/14 17	113.0	1,727	115.048	95.3	95.2	72.5	Use constant T due to highe	93.8	94.0	(0.14)	92.77	2,352	0
Sat 3/14 18	109.9	1,726	114.858	97.1	95.6	72.5	Use constant T due to highe	93.7	94.0	(0.19)	89.94	2,490	0
Sat 3/14 19	102.3	1,729	114.733	98.0	94.5	72.5	Use constant T due to highe	93.6	94.0	(0.23)	88.15	3,432	0
Sat 3/14 20	98.0	1,731	114.626	98.0	92.1	72.5	Use constant T due to highe	93.6	94.0	(0.26)	86.66	3,889	0
Sat 3/14 21	93.9	1,731	114.541	96.8	89.5	72.5	Use constant T due to highe	93.5	94.0	(0.28)	85.51	3,977	0
Sat 3/14 22	91.0	1,731	114.537	95.0	86.7	72.5	Use constant T due to highe	93.5	94.0	(0.28)	85.45	4,051	0
Sat 3/14 23	91.1	1,731	114.467	93.6	84.9	72.5	Use constant T due to highe	93.5	94.0	(0.30)	84.52	3,828	0
Sun 3/15 0	86.9	1,732	114.465	91.5	82.8	72.5	Use constant T due to highe	93.5	94.0	(0.30)	84.49	4,211	0
Sun 3/15 1	84.7	1,731	114.402	89.2	80.7	72.5	Use constant T due to highe	93.5	94.0	(0.32)	83.66	3,920	0
Sun 3/15 2	83.7	1,731	114.378	86.7	78.7	72.5	Use constant T due to highe	93.4	94.0	(0.33)	83.36	4,134	0
Sun 3/15 3	83.9	1,732	114.350	85.0	77.3	72.5	Use constant T due to highe	93.4	94.0	(0.33)	83.00	4,176	0
Sun 3/15 4	82.8	1,731	114.347	83.4	76.2	72.5	Use constant T due to highe	93.4	94.0	(0.33)	82.96	4,151	0
Sun 3/15 5	81.9	1,731	114.338	81.8	75.1	72.5	Use constant T due to highe	93.4	94.0	(0.34)	82.85	4,118	0
Sun 3/15 6	81.4	1,731	114.337	80.2	74.1	72.5	Use constant T due to highe	93.4	94.0	(0.34)	82.83	4,133	0
Sun 3/15 7	82.8	1,732	114.349	79.1	73.3	72.5	Use constant T due to highe	93.4	94.0	(0.33)	82.99	4,168	0